

THE BOROBUDUR VESSELS IN CONTEXT

A Thesis

by

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ABSTRACT

Eleven boats are depicted in the bas-reliefs that cover the walls of Borobudur, a ninth century C.E. Buddhist monument located in central Java. These vessels are an important source of information about the complexities of classical Indonesian shipbuilding, and contain data about rigging elements, rope use, fastening, rowing configurations, and outrigger construction. They represent critical evidence of physical structures that have not survived in the archaeological record. Scholars such as Hornell, Mookerji, Needham, Horridge, Manguin, Ray, and others have used the reliefs to improve our understanding of maritime trade, seafaring, and ship construction in ancient Southeast Asia. While the technical merits of the Borobudur Ships have been thoroughly discussed, a great deal of cultural data has been overlooked.

The objective of this thesis is to place the Borobudur Vessels in their proper religious, artistic, and narrative context. It addresses three central questions: 1.) What can the Buddhist narratives tell us about the seafaring scenes depicted at Borobudur? 2.) How did the artistic framework influence the representation of the vessels in the reliefs? 3.) What do Borobudur's reliefs tell us about contemporaneous seafaring in the region?

This study will demonstrate that the narrative and religious context of the Borobudur Vessels directly influenced how the panels were designed, how the ships were portrayed, and how we should interpret them. The Buddhist narratives associated

with the vessels provide deeper context for everything we see happening on board. The stories reveal the stakes involved in seafaring, explain what was expected of a mariner, and illustrate the skills and mindset needed to survive on an ocean-going vessel. The reliefs themselves provide a window on how seafaring stories were envisioned in ninth century C.E. Java. The 94 mariners depicted aboard the ships portray emotions, such as fear, courage, torpor, and astonishment, as well as abstract concepts such as teamwork, self-sacrifice, and leadership. This thesis will show that the Borobudur Vessels represent a concentrated effort to capture the struggles, heroism, and drama of sailing. They are material evidence of the intimate connection between Buddhism and seafaring, and provide unique insights into the Javanese perception of sailing, the ocean, and its dangers.

DEDICATION

For my Mother and Father,

Karen and Robert Inglis

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TABLE OF CONTENTS

	Page
ABSTRACT	ii
DEDICATION	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vii
LIST OF FIGURES	ix
LIST OF TABLES	xviii
EJ CRVGT"KINTRODUCTION	1
Overview	1
Research Objectives	10
EJ CRVGT"KMARITIME SOUTHEAST ASIA	15
Overview	15
Maritime Networks during the Proto-Historic Period.....	20
Transitions in Southeast Asian Commerce during the Historic Period.....	36
Indonesia's Classical Civilizations.....	40
The Buddhist Maritime Network	51
EJ CRVGT"KBOROBUDUR.....	57
Overview	57
Design and Symbolism.....	64
Abandonment, Discovery and Restoration	90
EJ CRVGT"K"THE BOROBUDUR VESSELS	96
Overview	96
Description of the Vessels.....	108
Indonesian Vessels	108
Artistic Context	139

EJ CRVGT'X SEAFARING AND SEA STORIES	144
Overview	144
Sea Stories in Indian Literature	145
Sea Stories in Buddhism	147
Spiritual and Narrative Themes.....	151
Seas Stories at Borobudur	161
The Borobudur Vessel Narratives	165
Seamen and Shipwrecks.....	231
Captain and Navigator.....	242
CHAPTER VI CONCLUSIONS	258
Overview	258
GLOSSARY	270
REFERENCES	271

LIST OF FIGURES

	Page
Fig. 1. A map of Southeast Asia, showing the location of Borobudur. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map (Natural Earth 2014).	2
Fig. 2: Borobudur monument, in central Java (photograph from Anandajoti 2009a).....	3
Fig. 3: A relief at Borobudur depicting a scene from <i>Avadānaśataka</i> 36, the story of Maitrakanyaka. The scene shows Maitrakanyaka shipwrecked and cast upon an island where he is greeted by four inviting <i>apsaras</i> (celestial maidens), (photograph from Anandajoti 2009b).	3
Fig. 4: Vessel I.b.53, one of the smaller outrigger vessels, showing furled canted rectangular sails, bipod/tripod masts, outrigger, rowing gallery, a quarter rudder and distinctive bow and stern decoration (photograph from Anandajoti 2009c).....	5
Fig. 5: An Indonesia <i>prau patorani</i> with tripod masts and canted rectangular sails (photograph from Hawkins 1982, 55).	6
Fig. 6: Erik Peterson's reconstruction of I.b.86 (illustration traced from Peterson 2006, 54, fig. 8.8).	8
Fig. 7: Vessel I.b.86 (photograph after Anandajoti 2009d).	8
Fig. 8: The replica built by the Borobudur Ship Expedition sailed from Jakarta to Ghana (photograph from Beale 2005).	9
Fig. 9. A close-up of rituals in the bow of the ships. In I.B.a.54 (<i>left</i>) Supāraga pours out libations from a small vessel; in I.b.86 (<i>right</i>) the crew pray and make offerings (the bowl in the hand of the bearded figure), (adapted from Anandajoti 2009e).	11
Fig. 10: The global exchange network, stretching from Rome to Guǎngzhōu, during the first half of the first millennium C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and trade route data presented by Hall as well as Indrawooth (Hall 1985, 30, Map 2; Indrawooth 2004, 124, Fig. 6.3; Natural Earth 2014).	16
Fig. 11: Territory controlled by Śrīvijaya and Mataram around the 9 th century C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary data from Munoz (Munoz 2006, 128; Natural Earth 2014).	17

Fig. 12. Monsoon wind patterns in the Indian Ocean, South China Sea and Indonesian Archipelago. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and wind pattern data presented by Hall as well as Glover and Bellwood (Hall 1985, 22, Map 1; Bellwood and Glover 2004, 10, Fig. 1.4; Natural Earth 2014).	19
Fig. 13: A Dong Son drum from around 600 B.C.E. in the Guimet Museum, Paris (photograph by Vert 2009).	24
Fig. 14: An exotic statue of a Hindu Goddess from the site of Pompeii (79 C.E.), (photograph after Sailko 2013).	28
Fig. 15: A map showing the overland trails across the Isthmus of Kra, and the extent of the Kingdom of Funan during the third century C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary and trade route data from Manguin (Manguin 2004, 284, Fig. 12.1; Natural Earth 2014).	32
Fig. 16: A Tibetan painting of a Vajradhatu mandala showing nested circles and squares with a central point, and four gates (102.2 x 77.5 cm distemper on cloth painting from Central Tibet, dated to the ca. late 14th century, from the Kronos Collections, image from The Metropolitan Museum of Art 1999).	42
Fig. 17: A map of the territory and sea lanes controlled by Śrīvijaya. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map, trade route data from Manguin, and boundary data from Munoz (Manguin 2004, 284, Fig. 12.1; Munoz 2006, 128; Natural Earth 2014).	44
Fig. 18: A map of the Kingdom of Mataram showing the political core in Central Java, prior to the 10 th century C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary data from Munoz (Munoz 2006, 128; Natural Earth 2014).	47
Fig. 19: Staircases leading up the face of Borobudur (photograph from Anandajoti 2009a).	58
Fig. 20: The location of Borobudur in Java's Kedu Plain. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary data from Kartapranata (Kartapranata 2010; Natural Earth 2014).	61
Fig. 21: Mt. Merapi and Mr. Merbabu at dawn, as seen from Borobudur (photograph from Anandajoti 2009a).	62
Fig. 22: Panel I.B.a.336 depicts a man plowing his fields (photograph from Anandajoti 2009f, fig. 271).	66

Fig. 23: A photograph showing an uncovered portion of Borobudur's hidden foot. The large stones of the casement can be seen to either side (photograph from Anandajoti 2009g, fig. 13).	68
Fig. 24: The open gallery corridor created by the back of the balustrade and terrace wall (photograph from Anandajoti 2009e).	71
Fig. 25: The niches with Buddha statues in Borobudur's balustrades may represent ascetics meditating in mountain caves (photograph from Anandajoti 2009a).	72
Fig. 26: Photograph showing a rings of stupas on the upper terrace (photograph after Anandajoti 2009a).	74
Fig. 27: A Buddha statue meditating within a stupa. The stupa was left open during reconstruction; similar closed structures are visible in the background (photograph from Anandajoti 2009a).	75
Fig. 28: A photograph of the gates that restrict passage between the levels at Borobudur (photograph from Anandajoti 2009a).	76
Fig. 29: A panel from the <i>Mahakarmavibhanga</i> reliefs on Borobudur's hidden foot. It shows men fishing and hunting birds with bows and stone (from Haryono 2010, 149).	76
Fig. 30: The position and designation of narratives on Borobudur's galleries (after Magestari 2010, 82).	78
Fig. 31: Panel II.41, showing Vaira's ship. It is the only vessel depicted on the upper levels (from Van Erp 1923, 28).	81
Fig. 32: The three divisions of Borobudur (from Kartapranata 2009).	83
Fig. 33: The great stupa of Sanchi, the oldest known continually used stone structure in India (from Maurya 2012).	87
Fig. 34: A photograph of monks from Drepung Loseling Monastery (Atlanta, Ga.) creating a Mandala sand painting at Minnesota State University in 2012 (photograph from Minnesota State University, Mankato Media Relations Office 2012 (September 10)).	89
Fig. 35: A watercolor by J. G. Newman depicting the overgrown and crumbling state of Borobudur before vegetation was cleaned from the monument in 1814 (49.5 x 66 cm watercolor from the Kartini Muljadi Collection, Jakarta, Indonesia, from Damais 2010, 230).	92

Fig. 36: Photograph of Borobudur during the 1973-1983 reconstruction process (from Setiadi 2010, 204).	95
Fig. 37. This rondel from the Stupa of Bharhut, dates to the second century B.C.E. It depicts two ships, one of which is being devoured by a sea monster (from Huntington and Huntington 1969).	100
Fig. 38. Numerous ships are depicted in the Ajanta Caves (ca. 6 th century C.E), including elephant and cavalry transports (A), a shipwreck off of Sri Lanka (B), a prince's ship (C), and a three masted merchant ship (D), (adapted from Schlingloff 1988, 390-1, figs. 6, 7, 8, and 10).	102
Fig. 39. Peterson's reconstruction of I.b.86 (from Peterson 2006, 54, fig. 8.8).	104
Fig. 40. Van Erp's Photograph of I.b.86 (after Van Erp 1923, 18, afb. 6).	104
Fig. 41: <i>Sarimanok</i> , built and sailed by Rob Hobman's team (video still from Dennison 1985)	106
Fig. 42: The replica built by the Borobudur Ship Expedition sailed from Jakarta to Ghana (photograph from Beale 2005).	107
Fig. 43. Vessel I.b.53 is an Indonesian type outrigger vessel with rowing galleries and two bipod masts (photograph from Anandajoti 2009c).	109
Fig. 44. Vessel I.b.86 is an Indonesian type outrigger vessel with rowing galleries and two bipod masts (photograph after Anandajoti 2009d).	110
Fig. 45. Vessel I.b.88 is an outrigger vessel with rowing galleries, oars, and two bipod masts. Likely a copy of I.b.86 (photograph after Anandajoti 2009d).	111
Fig. 46. Vessel I.b.108 (right) is an outrigger vessel with rowing galleries, oars, and two bipod masts. It is the larger of two vessels caught in a storm (photograph after Anandajoti 2009b).	112
Fig. 47. Vessel II.41 is an outrigger vessel with rowing galleries, oars, and a single bipod mast (from Van Erp 1923, 28, afb. 10).	113
Fig. 48. Vessel I.b.82 is a schematic view of a beached ship's boat. The vessel is distinctly disproportionate to the figures (photograph after Anandajoti 2009d).	114
Fig. 49. Vessel I.b.108 (left) is a small ships boat with a single bipod mast. It is the smaller of two vessels caught in a storm (photograph after Anandajoti 2009b).	115

Fig. 50: Peterson's body plan of I.b.86, showing the configuration of the outriggers, float, and rowing galleries, as well as the positions of rowers and paddlers (from Peterson 2003, 53, fig. 8.7).	127
Fig. 51: Van Erp's body plan, showing the configuration of the outriggers, floats, and rowing galleries (from Van Erp 1923, 30, fig 1.).....	127
Fig. 52: Outrigger designs, according to Van Erp (from Van Erp 1923, 30, figs. 2, 3).	130
Fig. 53. Vessel I.a.115 is a river ferry with dual rudders and deck structure (photograph modified from Anandajoti 2009h).	132
Fig. 54. Vessel I.b.23 appears to be a double ended vessel with protruding beams, a single pole mast, and a furled sail. The left half of the relief was never completed (from Van Erp 1923, 12, afb. 3).	133
Fig. 55. Vessel I.B.a.54 appears to be a double ended vessel with protruding beams, a single pole mast, and an out of control boom footed square sail. It is under attack by a sea monster. The left hand side of the relief has been damaged (modified from Van Erp 1923, 14, afb. 4).	134
Fig. 56. Vessel I.B.a.193 is unlike the other vessels seen at Borobudur It has a stern structure where the helmsman is standing, a square sail, a possible single pole mast or bipod mast, and a possible bowsprit (modified from Van Erp 1923, 15, afb. 5).	135
Fig. 57. This photograph is of a model of <i>Jewel of Muscat</i> that was built by Nick Burningham. The full-sized reconstruction was based on the Belitung shipwreck, a 9th-century Arabian ship. The vessel is double ended, with boom footed square sails. It is very similar to vessels I.B.a.54 and I.B.a.193 (image from Vosmer 2011, 125, fig. 90).....	138
Fig. 58. Panels with ship reliefs are frequently divided in half (as with I.b.86, <i>bottom</i>) or in thirds (as with I.b.53, <i>top</i>). These divisions govern the way that the ships were designed (adapted from Anandajoti 2009c [<i>top</i>] and Anandajoti 2009d [<i>bottom</i>]).	142
Fig. 59. Panel I.a.115 depicts the story of the river crossing. A riverboat is moored on the right bank. The Buddha stands defiant on the left, having flown across the river. The ferryman sits beneath the tree. His hand is pressed against his face, a sign of remorse for demanding a toll of the great being (from Anandajoti 2009h).....	166

- Fig. 60. Panel I.b.69 shows King Bimbisāra receiving the gift of the magical cuirass, held in the hands of the mustached figure (*center*). Bimbisāra (*right*) is overcome by the priceless gift (photograph from Anandajoti 2009d). 171
- Fig. 61. Panel I.b.70 shows the Buddha's image arriving in Roruka. It is rolled up, and carried by an emissary riding on the back of an elephant (photograph after Anandajoti 2009d). 171
- Fig. 62. Panel I.b.82 shows the jewel rain. Treasure pours from overturned pots (*top*). The poor gather up the rings, pendants, and jewelry (*center*). Some are loading a boat (*left and above*), perhaps crew of Hiru or Bhiksu's vessel. King Śikhaṇḍin watches from his palace (Photographs after Anandajoti 2009d). 174
- Fig. 63. Panel I.b.86 shows Hiru's vessel under sail (*right and above*). It is one of the great masterpieces of Buddhist artwork. Hiru sits in the stern (*far right*), directing the crew. At the bow, mariners conduct a ritual, perhaps ensuring a fortunate voyage. The left half of the panel shows the founding of Hiruka (Photographs after Anandajoti 2009d). 175
- Fig. 64. Panel I.b.88 shows Bhiksu's vessel under sail (*right and above*). Clearly, it was not carved by the master who created I.b.86. The scene is flat and sterile. The panels are similar in composition, but I.b.88 is not a direct copy. The ship shows oars, which I.b.86 does not. The scene ashore is also much different (photograph after Anandajoti 2009d). 176
- Fig. 65. The sailors in left half of panel I.b.86 (numbered left to right), (adapted from Van Erp 1923, 18, afb. 6). 177
- Fig. 66. The sailors in the right half of panel I.b.86 (numbered left to right), (adapted from Van Erp 1923, 18, afb. 6). 179
- Fig. 67. The sailors in panel I.b.88 (numbered left to right), (adapted from Van Erp 1923, 22, afb. 7). 181
- Fig. 68. The *right* half of panel I.b.107 shows Maitrakanyaka as a goldsmith. The left half of panel I.b.107 shows Maitrakanyaka departing for the ocean. His mother is prostrate at his feet, touching his leg. Her hair marks her as a widow. Maitrakanyaka's hand is raised – an act of defiance before the fateful kick (photograph from Anandajoti 2009b). 184

Fig. 69. The right half of panel I.b.108 shows Maitrakanyaka's ship in distress. A smaller vessel is headed for the safety of shore. The left half of panel I.b.108 shows four <i>apsaras</i> greeting Maitrakanyaka. He will enjoy their company for a time, before his wanderlust draws him on (photograph from Anandajoti 2009b).....	186
Fig. 70. The right half of panel I.b.112 shows Maitrakanyaka and the man bearing the iron wheel. The gate of Ayomaya is depicted at left. It is guarded by a <i>rakshasa</i> (demon), showing that there can be no escape. The man at right bears the torturous iron wheel upon his head. The left half of panel I.b.112 shows Maitrakanyaka reincarnated as a god in Tuṣita Heaven (photograph from Anandajoti 2009b).	187
Fig. 71. The lower right section panel I.b.108 depicts a sea creature with an open mouth. Perhaps this is the monster that upset Maitrakanyaka's ship (photograph after Anandajoti 2009b).	192
Fig. 72. Borobudur's artist depicted sea monsters in panels I.B.a.54 (<i>left</i>) and I.B.a.193 (<i>center</i>). In each panel, their mouths are gaping (adapted from Anandajoti 2009f).	192
Fig. 73. The sailors in panel I.b.108 (numbered left to right), (adapted from Anandajoti 2009b).....	194
Fig. 74. The merchants from Bharukaccha beg Suppāraka to join their voyage (modified from Anandajoti 2009f).	197
Fig. 75. Suppāraka pours out libations at the bow of the ship and invokes his virtue in a magical "act of truth" (from Anandajoti 2009f).	199
Fig. 76. Suppāraka gives the treasure from the voyage to the merchants, and commands them, "This treasure is enough for you: voyage on the sea no more" (modified from Anandajoti 2009f).	201
Fig. 77. The crew of I.B.a.54 (top row numbered first, left to right), (adapted from Anandajoti 2009f).	203
Fig. 78. Crew members (<i>center</i>) are holding mysterious rectangular objects. They might be jettisoning cargo or following Supāraka's command to pull up stones from the bottom of the ocean. Suppāraka (<i>right</i>) is pouring out libations with both hands while invoking the power of his <i>saccakiriya</i> (adapted from Anandajoti 2009f).	204
Fig. 79. Panel I.B.a.192 show the Buddha in a previous birth as a turtle in the great ocean (from Anandajoti 2009f).	207

Fig. 80. Panel 1.B.a.193 depicts a ship of merchants attacked by a great fish in the sea (figures are numbered from left to right), (adapted from Anandajoti 2009f).	208
Fig. 81. Panel 1.B.a.194 shows the merchants clinging to the back of the giant turtle who has rescued them from the ocean (from Anandajoti 2009f).	209
Fig. 82. Panel 1.B.a.195 depicts the turtle offering up his body to the starving merchants (from Anandajoti 2009f).	210
Fig. 83. Panel II.41 depicts Sudhana's visit to captain Vaira. Sudhana and Vaira sit together in a simple house at <i>left</i> . Vaira's ship is depicted at <i>right</i> (from Fontein 2012, 39, fig. 6).	213
Fig. 84. Panel II.41 shows the mariners above deck (numbered 1-6) maneuvering the sail. The faces of the oarsmen (7-11) are visible below (adapted from Van Erp 1923, 28, afb. 10).	216
Fig. 85. Panel I.b.22 shows the presentation of a man's portrait. His identity is unknown, but its arrival seems to have been accompanied by a great procession, including elephants (from Anandajoti 2009i).	218
Fig. 86. Panel I.b.23 shows the presentation of the portrait of a beautiful woman. At left, a ship is preparing to sail (from Anandajoti 2009i).	218
Fig. 87. Numbered figures in panel I.b.23. The densely-packed crew are busy on deck, with eight committed to raising the sail, and four fishing (center), (adapted from Van Erp 1923, 12, afb. 2).	220
Fig. 88. The left half of panel I.b.51 depicts craftsmen carving toy <i>kinnaras</i> (photograph after Anandajoti 2009c).	223
Fig. 89. Panel I.b.52 shows a man and a woman flying over the ocean (<i>right</i>) and lying together in the wilderness (<i>center</i>). An ogre or a demon with a sword seems to be searching outside (photograph from Anandajoti 2009c).	223
Fig. 90. Panel I.b.53 depicts a boat getting under way (<i>left</i> and <i>above</i>), and a beautiful woman greeting a group of seven merchants or sailors who have gone ashore (<i>right</i>) (Photographs after Anandajoti 2009c).	224
Fig. 91. Panel I.b.54 show as great house full of feasting people (<i>right</i>), and the beautiful woman, sitting in a separate house with her attendants (<i>left</i>) (photograph from Anandajoti 2009c).	225

Fig. 92. Panel I.b.55 depicts a court scene, with a queen and king receiving gifts (<i>right</i>). The other figures may be the merchants shown earlier (<i>left</i>) (photograph after Anandajoti 2009c).	225
Fig. 93. Six figures (numbered 1-6) are visible aboard the vessel in Panel I.b.53 (adapted from Anandajoti 2009c).	227
Fig. 94. Sea-monsters in panels I.B.a.54 and I.B.a.193 (adapted from Anandajoti 2009f).	233
Fig. 95. A <i>makara</i> guards one of the entrances at Borobudur. It has a lion in its mouth (from Miksic 2010, 48).	234
Fig. 96. A marlin leaping from the water, perhaps the silver fishes “with bodies like men, and sharp razor-like snouts” that the sailors describe (photograph from Sigda 2009).	252
Fig. 97. Panel II.41 shows a flock of seabirds circling above the vessel, indicating land is close. The crew have release a small, land finding pigeon like the ones described by the Buddha in the <i>Kevaddha Sutta</i> (adapted from Van Erp 1923, 28, afb. 10).	255

LIST OF TABLES

	Page
Table 1. Periods in Indonesian History	22
Table 2. Figures involved in the maritime disasters depicted in panels I.b.108, I.B.a.54, and I.B.a.193.....	238

CHAPTER I

INTRODUCTION

Overview

The most informative examples of ancient Southeast Asian ship iconography are found on the ninth century C.E. Borobudur monument in central Java (Fig. 1 and Fig. 2). Javanese artisans depicted 11 boats within the 1,460 elaborately carved bas-reliefs that cover the walls of Borobudur (Fig. 3). These vessels are an important source of information about the complexities of classical Indonesian shipbuilding. They are technical depictions, and contain data about rigging elements, rope use, fastening, rowing configurations, and outrigger construction. They represent critical evidence of physical structures that have not survived in the archaeological record and, consequently, these scenes play an important role in debates over trade and expansion in India and Southeast Asia. While their technical merits have been thoroughly discussed, a wealth of cultural data has been overlooked in past discussion of the reliefs. They are part of Buddhist narratives that contain important clues as to where each vessel was headed, who was aboard, and what was happening on deck. More importantly, the Borobudur Vessels grant us some insight into the Javanese perception of sailing and ocean dangers, and are material evidence of the important cognitive connection between Buddhism and seafaring.

A number of preeminent scholars have used the reliefs to expand our understanding of ancient and pre-modern sailing vessels, including Van Erp, Hornell,



Fig. 1. A map of Southeast Asia, showing the location of Borobudur. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map (Natural Earth 2014).



Fig. 2: Borobudur monument, in central Java (photograph from Anandajoti 2009a).



Fig. 3: A relief at Borobudur depicting a scene from *Avadānaśataka* 36, the story of Maitrakanyaka. The scene shows Maitrakanyaka shipwrecked and cast upon an island where he is greeted by four inviting *apsaras* (celestial maidens), (photograph from Anandajoti 2009b).

Hornell, Mookerji, Needham, Horridge, Manguin, and Ray.¹ Scholarship has focused on the five outrigger vessels depicted in the reliefs. All five have canted rectangular sails, bipod/tripod masts, outriggers, rowing galleries, deckhouses, quarter rudders, and distinctive bow and stern decorations (Fig. 4).

To better understand the hull structure of Southeast Asian ships, scholars have turned to archaeological and ethnographic evidence. The discovery of a number of preserved hulls throughout Southeast Asia has allowed scholars to reconstruct the evolution of hull construction during Indonesia's Pre-Classical and Classical periods. These archaeological finds have been catalogued by McGrail and thoroughly analyzed by Manguin.² Scholars have been able to compare this archaeological data to historically documented ethnographic examples and living traditions from the Indonesian Archipelago.³ Some Indonesian *prahu* (boats) from the modern era retain features found in the reliefs, such as bipod or tripod masts, outriggers, quarter rudders and deckhouses (Fig. 5). They have been extensively documented by Horridge and Hawkins, as well as other maritime ethnographers.⁴ The closest known relative of Borobudur's outrigger vessel were *kora kora*, slender Indonesian galleys with outriggers and bipod masts. They were used as pirate vessels, coastal raiders, and royal barges during the 16th and 18th centuries.⁵

¹ Van Erp 1923; Hornell 1946; Mookerji 1957; Needham et al. 1971; Horridge 1982; Manguin 1993; Ray 1994.

² McGrail 2001, 296–302; Manguin 1996, 181–98.

³ See Horridge 1982.

⁴ Hawkins 1982; Horridge 1985.

⁵ Horridge 1978, 9–16.



Fig. 4: Vessel I.b.53, one of the smaller outrigger vessels, showing furlled canted rectangular sails, bipod/tripod masts, outrigger, rowing gallery, a quarter rudder and distinctive bow and stern decoration (photograph from Anandajoti 2009c).



Fig. 5: An Indonesia *prau patorani* with tripod masts and canted rectangular sails (photograph from Hawkins 1982, 55).

The precision and beauty of the Borobudur Vessels has inspired several reconstructions. These attempts have drawn on the mosaic of evidence available from iconography, ethnography, and archaeological excavations, as well as indigenous seafaring traditions. Hypothesizing that the vessels depicted on Borobudur were highly precise representations of real ships, Erik Peterson created a set of plans (Fig. 6) and a sailing model of Vessel I.b.86 (Fig. 7).⁶ Full-scale sailing reconstructions include *Sarimanok*, commissioned by Robert Hobman and sailed from Java to Madagascar in 1985,⁷ Philip Beale's full-sized replica (Fig. 8) which was launched in 2003 and sailed from Jakarta to Ghana,⁸ and the *Spirit of Majapahit*, launched from Jakarta in 2010 on a goodwill voyage to Brunei, the Philippines, Japan, China, Vietnam, Thailand, and Singapore.⁹

Despite these reconstructions, the Borobudur Vessels were never meant to be blueprints. The primary purpose of the reliefs was to transmit Buddhist teaching through beautifully sculpted stories. The Buddhist folklore associated with the Borobudur vessels helps us understand what is happening aboard. Perhaps more importantly, the Borobudur Vessels provide important insights into how the Javanese perceived seafaring. We see how seamen reacted to a storm – some courageously struggle to tend the sails and save the ship, some cling to the rigging and masts in terror, some pray, while others are thrown to the mercy of the sea. The vessel depicted in I.b.86 is famous because it is one

⁶ Peterson 2006, 52.

⁷ Dennison 1985.

⁸ Beale 2005.

⁹ Antara 2010 (July 5).

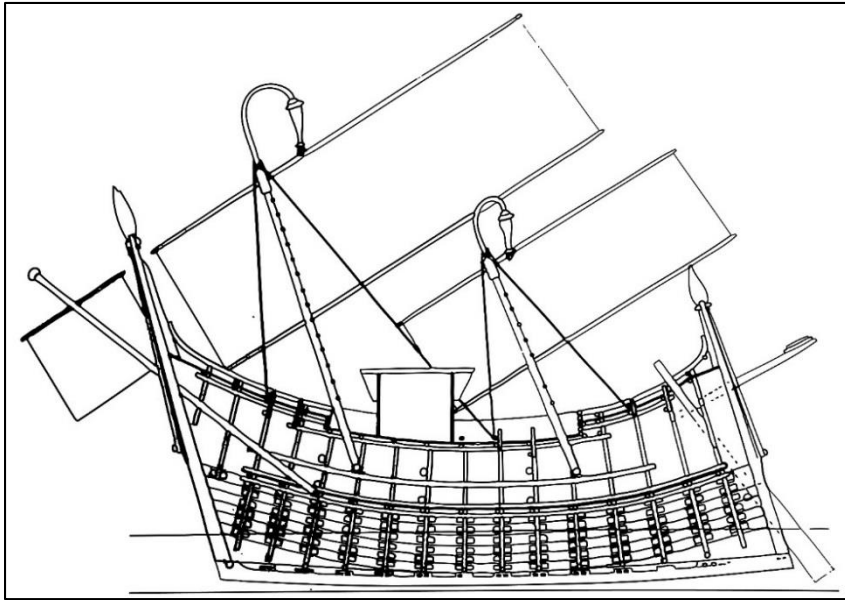


Fig. 6: Erik Peterson's reconstruction of I.b.86 (illustration traced from Peterson 2006, 54, fig. 8.8).



Fig. 7: Vessel I.b.86 (photograph after Anandajoti 2009d).



Fig. 8: The replica built by the Borobudur Ship Expedition sailed from Jakarta to Ghana (photograph from Beale 2005).

of the masterpieces of Southeast Asian iconography, and provides elaborate technical details of how Southeast Asian shipwrights constructed watercraft in the first millennium C.E. However, I.b.86 also teaches us a great deal about ancient seafaring. The relief shows us what an ideal voyage should look like. The crew is lively about the ship, hauling on the rigging and setting the sails. They are brave, conducting daring acts at the masthead and bowsprit. They are religious and mindful, performing the proper rituals at the bow of the ship (Fig. 9). The captain sits in the stern, directing his ship to a successful landfall. The expressive figures on board the Borobudur vessels provide important information about the lives and duties of ancient mariners. They are material evidence of the intimate connection between Buddhism and seafaring, as well as the unique place that sea-stories have in Buddhist literature.

Research Objectives

The objective of this thesis is to place the Borobudur Vessels in their proper religious, artistic, and narrative context. This study will address three central questions. 1.) What can the Buddhist narratives tell us about the seafaring scenes depicted at Borobudur? 2.) How did the artistic framework influence the representation of the vessels in the reliefs? 3.) What do Borobudur's reliefs tell us about contemporaneous seafaring in the region?

To address these three research questions, this thesis will primarily draw on evidence from Buddhist narratives, iconography, and seafaring accounts, as well as information available from archaeology and ethnography. This analysis focuses on two

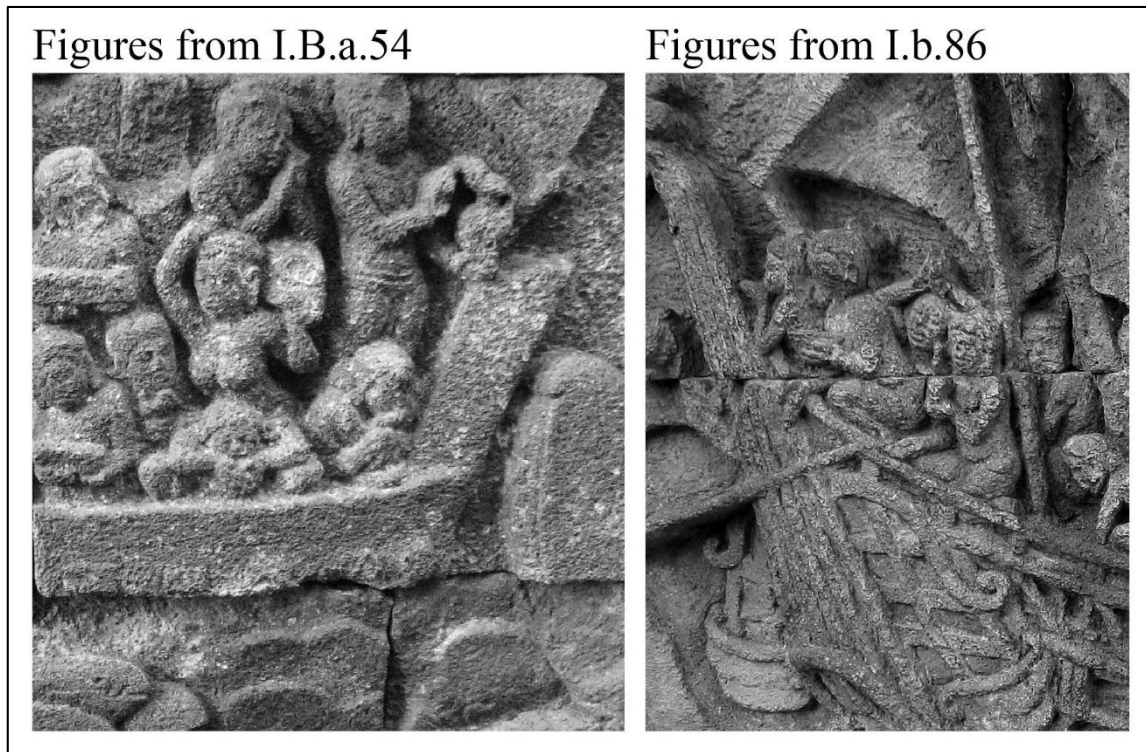


Fig. 9. A close-up of rituals in the bow of the ships. In I.B.a.54 (*left*) Supārāga pours out libations from a small vessel; in I.b.86 (*right*) the crew pray and make offerings (the bowl in the hand of the bearded figure), (adapted from Anandajoti 2009e).

sets of photographs. The initial set was published by Van Erp (1923). They were taken following the first restoration of the monument after the reliefs had been cleaned. These black and white photographs will be complimented by additional digital images made publicly available by Anandajoti in the photodharma.net archive.¹⁰ Although the modern images are high resolution, many of the details are no longer visible, eliminated by nearly a century of public exposure and natural weathering.

This thesis will follow Krom's system for numbering the reliefs.¹¹ Each panel has a label that indicates which gallery it is located in, which wall it is on, and an individual number that designates its position in the overall panel sequence for that wall. The galleries are numbered I through IV. The outer wall of each gallery is the back of a balustrade. Panels on those walls are designated with a gallery number and a capital "B" (i.e. II.B). Panels on the inner wall are designated by gallery number alone (i.e. II). The first gallery has two series of panels on each wall. The upper series on each wall is designated with a lowercase "a," while the bottom series is designated with a lowercase "b." The 54th panel in the *upper sequence* of the *first gallery balustrade* (outer) wall would be designated I.B.a.54 (this panel shows a ship and sea monster). The 108th panel in the *lower sequence* of the *first gallery main* (inner) wall is designated I.b.108 (this panels shows a ship in distress and the crew escaping in a smaller boat). The second, third and fourth galleries only have one series on each wall, so no lowercase letter is

¹⁰ Anandajoti 2009e, <http://photodharma.net/Indonesia/Indonesia.htm>.

¹¹ Krom 1927.

needed. The 41st panel on the *main* wall of the *second* gallery would be designated II.41 (this panel shows a man climbing a bipod mast).

To help place the three overarching questions in their historical framework, this study will look at how seafaring in Southeast Asia developed in the first millennium C.E., explore how and why the reliefs at Borobudur were created, and explain the role that sea stories play in Buddhist literature. Chapter II (Maritime Southeast Asia) will review the development of sailing networks in Southeast Asia during the first millennium C.E. It will examine how Buddhism spread throughout Southeast Asia, contributed to the growth of maritime trade, and was influenced by the maritime communities it interacted with. Chapter III (Borobudur) will review what is known about the origin, purpose, and design of the Borobudur monument, and explain how the narrative reliefs are related into the monument's structure. Chapter IV (The Borobudur Vessels) will review the literature associated with the Borobudur Vessels, and describe the different types of vessels depicted in the reliefs. Chapter V (Seafaring and Sea Stories) will briefly summarize what is known about Buddhist seafaring literature. It will discuss the different types of seafaring stories, and outline the key metaphors and concepts involved. Chapter V will then provide an analysis of the Borobudur Vessels. The seafaring narratives associated each vessel will be summarized, and each ship will be subsequently described, with a focus on the individuals on board and how their activities relate to the narratives. Chapter V will synthesize the information about seafaring presented in both the reliefs and the narratives, and elaborate on what they tell us about the sea and its dangers, how mariners responded to shipwrecks and disasters,

and how captains managed their crews and guided voyages across the ocean. Chapter VI (Conclusions) will provide a synthesis of the information provided in the previous chapters, and address the three research questions outlined above.

CHAPTER II

MARITIME SOUTHEAST ASIA

Overview

During Southeast Asia's Classical period (ca. 7th to 15th century C.E.), Indonesia was the hub of an extensive maritime network that stretched from the coast of China to the Red Sea and beyond (Fig. 10). This system was a conduit for merchants, pilgrims, explorers, and colonists. The components of this sailing network developed in antiquity. During the first millennium C.E., they evolved into a system that involved coastal tramping, island hopping, overland transport, and open-ocean routes. During Southeast Asia's Proto-Historical period (fourth century B.C.E. to fourth century C.E.), a series of trade booms among China, India and the West drove the expansion of exchange networks, the growth of ports, and process of state formation. The florescence of Buddhism during this period encouraged the development of maritime networks by removing cultural barriers associated with wealth, travel, trade, and foreigners, and by establishing active communities through Southeast Asia. Between the fifth and eighth centuries C.E., Maritime Southeast Asia transformed from a backwater locality into the economic and intellectual crossroads of the East.

Two powerful states emerged as dominant forces in Indonesia at the beginning of the Early Classic period (7th to 10th centuries C.E.). The first was Śrīvijaya, a powerful Buddhist thalassocracy that controlled Southeast Asia's sea lanes. Śrīvijaya ruled most of Sumatra, the Malay Peninsula, and western Java (Fig. 11). The second state was the

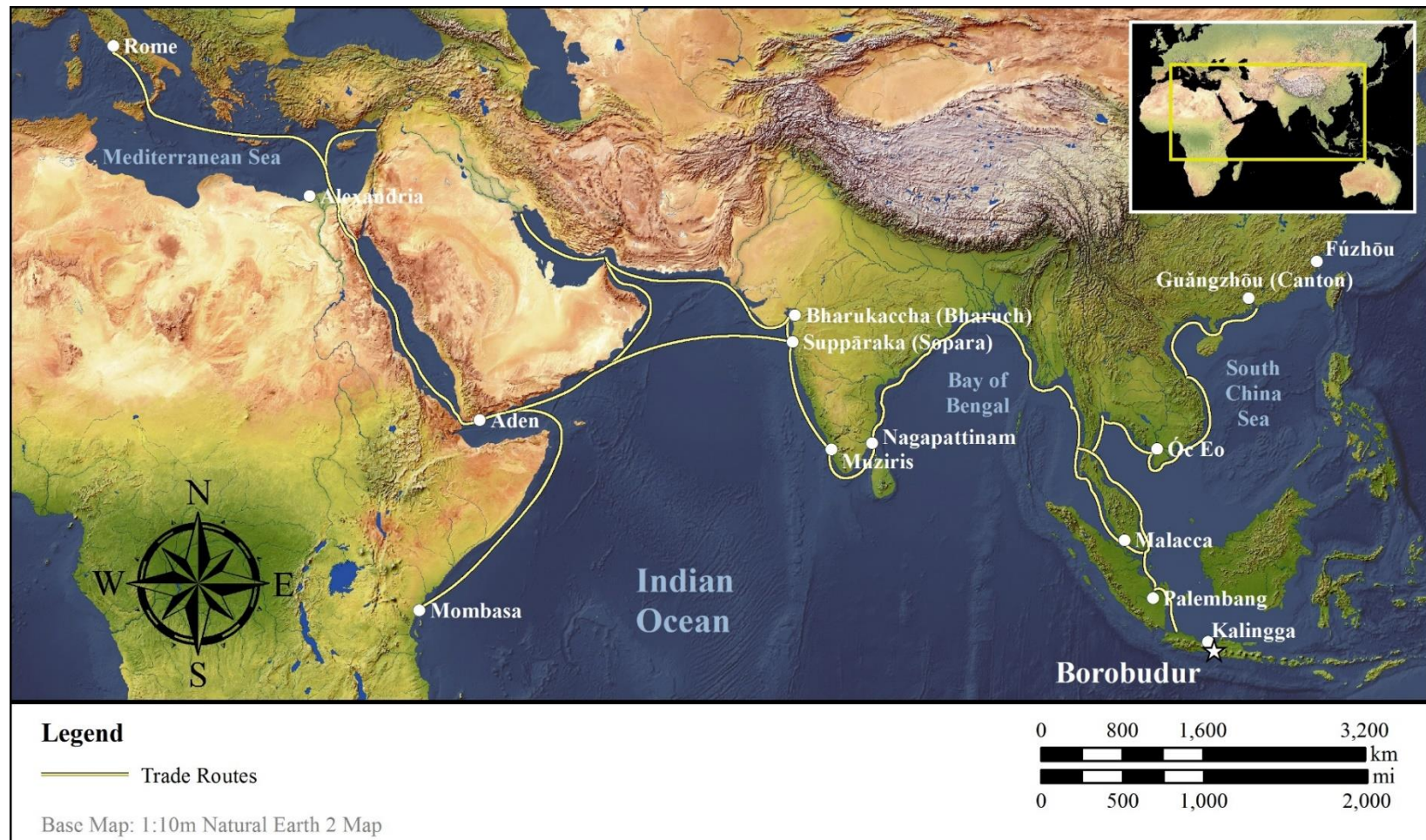


Fig. 10: The global exchange network, stretching from Rome to Guǎngzhōu, during the first half of the first millennium C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and trade route data presented by Hall as well as Indrawooth (Hall 1985, 30, Map 2; Indrawooth 2004, 124, Fig. 6.3; Natural Earth 2014).



Fig. 11: Territory controlled by Śrīvijaya and Mataram around the 9th century C.E.
Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary data from Munoz (Munoz 2006, 128; Natural Earth 2014).

Hindu Kingdom of Mataram in central Java, whose wealth and stability arose from Java's intensive wet-rice agriculture and rich interior resources. During the eighth century C.E., the Buddhist Śailendra dynasty came to power in Mataram. They built Borobudur in the middle of Java's Kedu plain as a symbol of the Buddhist cosmic order manifest on earth, and their role as *cakravartin*, righteous monarchs who would rule through spiritual authority.

Geographic Factors

Long distance maritime exchange in Asia depended on the fluctuations of the South Asian and East Asian monsoons (Fig. 12). Sailors relied on the steady winds to make both coastal and open-ocean voyage, and returned home when the winds reversed. Understanding and anticipating the monsoon winds was essential to safe navigation and efficient trade. Ancient sailors knew the patterns of the monsoon, and even compiled tables of sailing dates.¹² Local topography and weather patterns produced drastically different sailing dates for ports in the Indian Ocean, Bay of Bengal, South China Sea, and Indonesian Archipelago.¹³

While the engines of the South Asian and East Asian monsoons drove the direction of trade in Asia, geography determined its flow. The contours of South India, Mainland Southeast Asia, the Malay Peninsula, and the jumbled islands of the Indonesian archipelago created geographic choke-points in the flow of trade. The

¹² In Arabic, the word for these sailing seasons was *mawāsim*, the origin of our "Monsoon" (Tibbetts 1981, 360).

¹³ For detailed accounts, see Tibbetts 1981, 360–8, Deloche 1994, 209–16, and Agius 2005, 192–5.

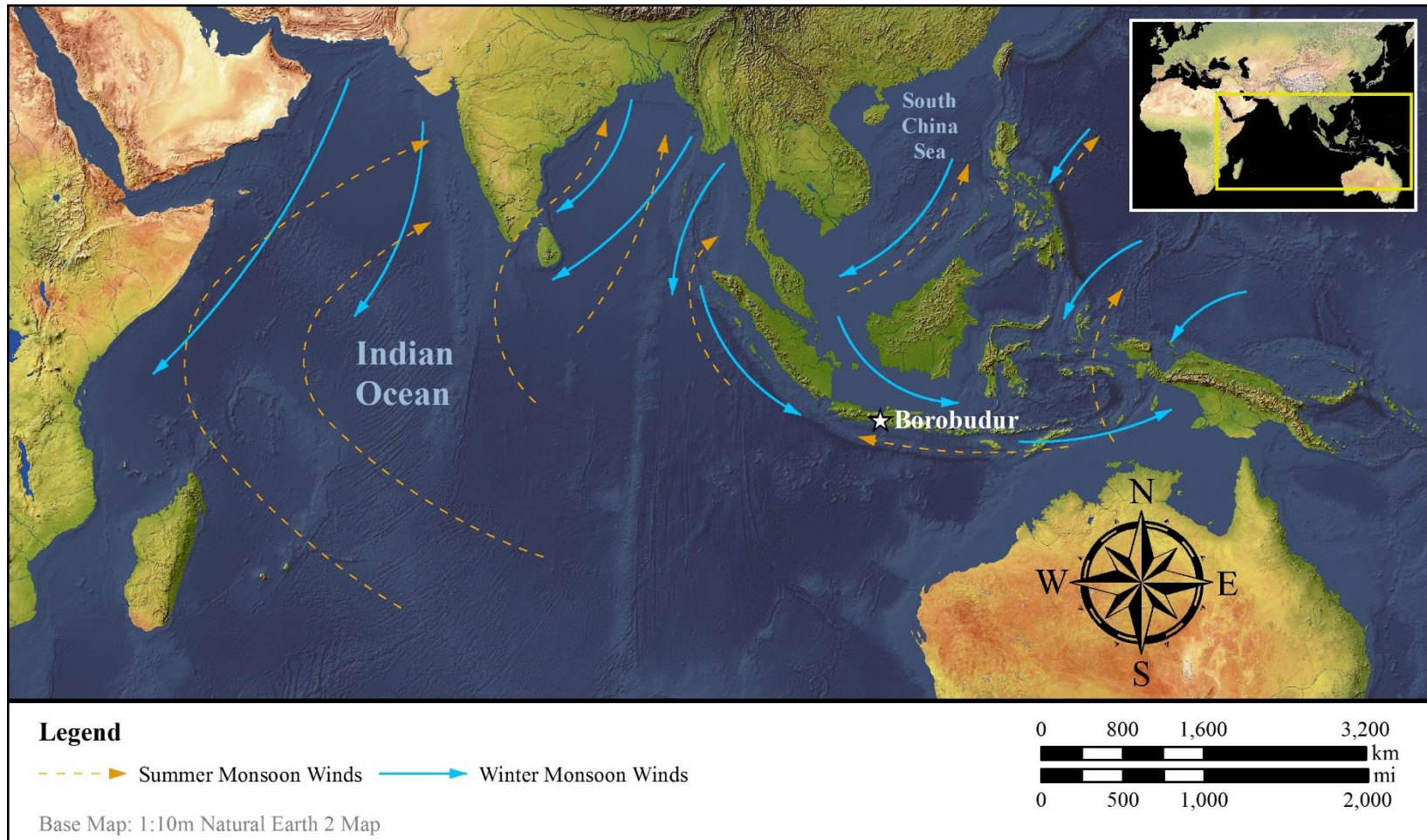


Fig. 12. Monsoon wind patterns in the Indian Ocean, South China Sea and Indonesian Archipelago. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and wind pattern data presented by Hall as well as Glover and Bellwood (Hall 1985, 22, Map 1; Bellwood and Glover 2004, 10, Fig. 1.4; Natural Earth 2014).

interaction between these turns of topography and the prevailing winds forced ships, at times, to lay over and wait until the monsoon reversed or fair winds returned before they continued their voyage (many early accounts of Southeast Asia are from travelers who were forced to wait at port during travel between India and China). Choke points and layovers made it more efficient for merchant vessels to operate a limited route than to conduct long voyages across or around multiple bodies of water. Thus, the Indian Ocean, Bay of Bengal, Indonesian Archipelago, Gulf of Thailand, and South China Sea each developed predominantly internal exchange networks.¹⁴

Maritime Networks during the Proto-Historic Period

Like the pulse of the monsoons, Southeast Asian maritime trade underwent cyclical surges, governed by periodic economic booms in India and China.¹⁵ These surges contributed to the development of new trade routes, regional stability, and the growth of coastal cities. Subsequent periods of stagnation contributed to the collapse of maritime states, the shift of economic power from coasts to agrarian hinterlands, and the reconfiguration of sailing networks. These booms are identifiable in both the archaeological and historical record.

Costal Trade in the Early Proto-Historic Period

The vast Asian maritime network ultimately evolved from short, segmented coastal trade routes. For thousands of years of nautical history, ships stayed near shore. It

¹⁴ Hall 1985, 20.

¹⁵ Christie 1998, 344.

is not until the middle of the first millennium C.E. that we have evidence of Asian merchant vessels making regular, long, open sea crossings in Southeast Asia.¹⁶ Southeast Asian maritime networks began rapidly expanding at the beginning of the first millennium C.E. This age sometimes referred to as the Proto-Historic period, though its beginning and terminus are usually regionally defined (Table 1). Numerous critical changes in Southeast Asian shipping occurred at the end of second century and beginning of the third century C.E., including a boom in Indo-Roman commerce, the destabilization of the Silk Road, and the emergence of Funan as the primary conduit of East-West trade. For the purpose of this thesis we will divide this period into the Early Proto-Historic period (from the fourth century B.C.E. to the end of the second century C.E.) and the Late Proto-Historic period (from the beginning of the third to the end of the fourth century C.E.).¹⁷

Material evidence from pottery, jewelry and other luxury goods indicates that disparate South Asian and Southeast Asian trading routes expanded into an integrated regional network during the Early Proto-Historic period. It is likely, however, that these early maritime networks mainly transported perishable goods through regional tramping routes. Ray argues that it was “coastal circuits handling subsistence commodities that formed the bedrock of maritime trade.”¹⁸ Since perishable commodities such as foodstuff and textiles seldom survive in the ancient archaeological record, most of what

¹⁶ See “Fifth Century Transitions” below.

¹⁷ This follows Bérénice Bellina and Ian Glover’s division of the Proto-Historic period into Phase I (4th c. B.C.E. to 2nd c. C.E.) and Phase II (2nd to 4th c. C.E.), see Bellina and Glover 2004, 72.

¹⁸ Ray 1994, 189.

Table 1. Periods in Indonesian History

Period	Dates	Notable events mentioned in the text
Early Proto-Historic	400 B.C.E. - 200 C.E.	<ul style="list-style-type: none"> • Expansion of coastal networks connecting India and Southeast Asia • Consolidation of the Silk Road trading routes during the Han Dynasty (206 B.C.E.-220 C.E.) • Increased trade with the Mediterranean during <i>Pax Romana</i> (27 B.C.E. – 160 C.E.)
Late Proto-Historic	200 C.E. - 400 C.E.	<ul style="list-style-type: none"> • Rise of Funan (68 - 550 C.E.) as the nexus for Southeast Asian Trade • Java and Sumatra become important secondary trading centers • China trade destabilizes during the Three Kingdoms period (220–280 C.E.) and Jin Dynasty (265-420 C.E.)
Early Historic	400 C.E. - 600 C.E.	<ul style="list-style-type: none"> • Proliferation of open-ocean trade routes • China pursues direct trade with Sumatra and Java • Buddhist monk Gunavarman converts a chiefdom in Java (ca. 400 C.E.) • Buddhist monk Faxian visits Java (413 C.E.)
Early Classic	600 C.E. - 900 C.E.	<ul style="list-style-type: none"> • Sumatra becomes the nexus of Asian trade • Rise of Śrīvijaya in Sumatra (ca. 650 - 1377 C.E.) • Buddhist monk Yijing studies in Śrīvijaya (671 C.E.) • Mataram (Java) founded by Sañjaya Dynasty (732 C.E.) • Rise of Śailendra Dynasty in central Java (770 - 856 C.E.) • Construction of Borobudur (780 and 832 C.E.)
Middle Classic	900 C.E. - 1200 C.E.	<ul style="list-style-type: none"> • Decline of monumental architecture in Java • Mt. Merapi erupts, and Java's Royal court shifts to the east (1006 C.E.) • Chola begin launching raids against Śrīvijaya (1025 C.E.)
Late Classic	1200 C.E.- 1400 C.E.	<ul style="list-style-type: none"> • Javanese ports emerge as the primary hubs of the spice trade • Rise of Majapahit Empire in Java (1293 - 1527) • Pilgrims continue to visit Borobudur

we know about the coastal trade during the Proto-Historic period comes from physically robust luxury items.

The distribution of the elaborate Dong Son bronze kettle drums has been used as a partial proxy for the extent of maritime networks during this period.¹⁹ Artisans from the Dong Son culture in northern Vietnam produced these large ceremonial drums using the lost-wax method between the seventh and third century B.C.E. They embellished the drums with distinctive geometric patterns as well as depictions of events, creatures, and watercraft (Fig. 13). Over two hundred drums have been found throughout Southeast Asia, from southern China to northern Thailand. Significantly, a number have been found in insular Southeast Asia, including sites in Sumatra, Java, Bali, Sulawesi and the eastern archipelago.²⁰ The drums may have been curated items, and transported at a later date. Drums were clearly linked with the maritime world. Drums have been found in association with boat burials at Malaysian coastal sites, and some examples have stylized boat designs on the surface.²¹ It is probable that during the mid-to-late first millennium B.C.E., coastal trading networks extended to Java and beyond.

Indian rouletted ware indicates the extent of Indian-Southeast Asia trade networks during the Early Proto-Historic period. Rouletted ware was made in southeast India between the second century B.C.E. and second century C.E., and generally took the form of a shallow, flat dish with low, inward curving sides. Its distribution shows the

¹⁹ Ray 1994, 108; Kempers 1988, 232–42.

²⁰ Bellwood 1985, 272–80.

²¹ Ray 1994, 119.



Fig. 13: A Dong Son drum from around 600 B.C.E. in the Guimet Museum, Paris (photograph by Vert 2009).

pattern of trade, first appearing along the eastern coast of India, and extending as far as Java (Buni complex), Bali (Sembrian), and Vietnam (Kra Kieu).²² Archaeological examples of other Indian imports into Southeast Asia include ivory combs, dice, glass and stone beads, bronze vessels, and luxury items from as far away as the Roman provinces.²³ This evidence indicates that early Southeast Asian coastal trade routes extended from Vietnam to the lower Burmese coast, and throughout Indonesia.²⁴

In the first millennium B.C.E., ornaments in Southeast Asia were manufactured from soft materials - serpentine, marble, limestone, and shell. During the Early Proto-Historic period, elite burials began to include glass ornaments, as well beads and pendants crafted from hard semi-precious stones such as agate, carnelian, and nephrite. These items were originally crafted by skilled artisans in South Indian workshops and imported around the Bay of Bengal. The complex techniques required to create glass and delicately carve hard stones were also transferred to Southeast Asia. There is evidence of local glass and bead production centers at sites such as Khuan Lukpad, U-Thong and Óc Eo from the early centuries C.E. This is an important reminder that trade networks were a conduit for ideas and technology, as well as material goods.²⁵

Merchants and shippers sealed pots and marked valuable items with stamped clay. Both the impressed clay and stone seals provide excellent evidence of early exchange networks because of their specific role in trade and transport. Carnelian seals

²² Bellina and Glover 2004, 78.

²³ Indrawoath 2004, 122.

²⁴ Ray 1994, 189.

²⁵ Bellina and Glover 2004, 71–3.

inscribed with Brahmi characters have been found at the coastal sites in the Malay Peninsula, with the earliest dating to the first century C.E. (from Khuan Lukpad). Other seals were engraved with symbols, such as ships, or devices such as classical figures, like Tyche/Fortuna. These types of seals and impressions are distributed throughout sites in the Malay Peninsula and Indochina. Few have been found at sites in the Indonesian archipelago, indicating that it was only on the periphery of this network.²⁶

Roman Trade

The Roman economy stabilized during the two centuries of *Pax Romana* (27 B.C.E. – 160 C.E.). The burgeoning demand for foreign and exotic goods resulted in an East-West trade boom. Greco-Roman merchants shipped Mediterranean goods via Red Sea ports to those along the western coast of India. This trade route developed in ancient times, but intensified during the Ptolemaic Dynasty (305 to 30 B.C.E.). The first century C.E. navigation manual *Periplus Maris Erythraei* is the source of much of what we have come to know about Indo-Roman trade.²⁷ Written in Greek by an unknown author, it extensively records the sailing routes, ports of call, commodities, and weather patterns critical to trade in the Red Sea, Persian Gulf and Indian Ocean.

Indian ports exported a wide range of goods from the interior of the sub-continent and as far away as China. These included local spices such as pepper and malabathrum, botanicals such as resins, costus, bdellium (aromatic gum similar to myrrh), spikenard and lycium, textiles such as cotton and silk cloth, ornamental luxuries

²⁶ Ray 1994, 112–115.

²⁷ See Casson 1989.

including pearls, ivory and tortoise-shell and a variety of precious and semiprecious gemstones including agate, carnelian, and even diamonds and sapphires. Romans brought a variety of goods to markets along the west coast of India. According to the *Periplus*, these included wines from around the Mediterranean; metals including copper, tin, and lead; precious mineral products such as realgar, antimony and orpiment; ornamental luxuries like coral and topaz; clothing, rugs, embroidery, perfumes, aromatics and ointments.²⁸

The destruction of Pompeii (79 C.E.) preserved one of the most sumptuous examples of Rome's exotic market - an ivory statue of a Hindu goddess (Fig. 14).²⁹ However, most material remains from the India trade have not endured in the archaeological record. They were consumed (spices, perfumes, delicacies), decayed (silk, rare woods, ivory), or perished (exotic animals and slaves). The import and use of these luxury items, spices and animals are discussed throughout Pliny the Elder's (23-79 C.E.) *Natural History*.³⁰

Gold and silver coins were the most important commodity that merchants brought from the Roman provinces. Throughout history, Indian cultural demand for gold has been extraordinary, and was the highest consumer of gold in the world until 2013, when it was surpassed by China.³¹ In the first millennium, gold was the exchange base in Asian regional trade, allowing merchants from India, Persia and Southeast Asia to make

²⁸ Schoff 1912, sec. 49–56.

²⁹ Wheeler initially identified it as the goddess Lakshmi, wife of Vishnu and the embodiment of beauty, prosperity, and fortune. This has since been refuted (Parker 2002, 54).

³⁰ Parker 2002, 44–6.

³¹ World Gold Council 2014 (February 18), 1–3.



Fig. 14: An exotic statue of a Hindu Goddess from the site of Pompeii (79 C.E.),
(photograph after Sailko 2013).

transactions in a common medium. This process inflated the already high Indian demand for the precious metal.³² Pliny the Elder noted that in any given year, trade with India drained Rome of at least 50 million *sesterces*.³³ The prestige of Roman currency collapsed in the first century of the first millennium C.E. Following the burning of Rome in 64 C.E., Nero (54-68 C.E.) devalued Roman currency for the first time in the empire's history, decreasing the weight of *aurei* and reducing both the weight and silver content of *denarii*. Vespasian (69-79 C.E.) further debased Roman currency to stem the flow of gold and silver from Rome. The diminished purity drove down demand, and Roman coins are rare in Indian hordes following this period.³⁴

The archaeological evidence of trade between Rome, India and Southeast Asia is well known, and comprehensively discussed by Himanshu Ray.³⁵ The wealth of Roman material found throughout the Indian subcontinent testifies to the importance of Indo-Roman trade. Mediterranean amphora and Arrentine ware have been found at sites along the southern coast. Hordes of Roman gold and silver coins are abundant in southern India, and even found in the Lakshadweep Islands, some 260 kilometers off the southeastern coast. Roman seals and intaglios with classical motifs have been found throughout India and Sri Lanka.³⁶

Authentic Roman artifacts are scarce, however, in Southeast Asia. Sites in Thailand have yielded a few rare finds, including a bronze Roman-style lamp from Pong

³² Hall 1985, 36.

³³ Pliny 1938, sec. 6.101.

³⁴ Wheeler 1955, 140–1.

³⁵ Ray 1994.

³⁶ Ray 1994, 112, 178.

Tuk and a copper coin displaying Victorinus (268-270 C.E.) from U Thong.³⁷ Most famously, excavations at Óc Eo in Vietnam uncovered medallions depicting Marcus Aurelius (161-180 C.E.) and Antoninus Pius (138-161 C.E.). Carnelian Intaglios with classical motifs (Tyche/Fortuna, Perseus, etc.) have also been found at early first millennium sites throughout the Malay Peninsula and the southwest coast of Vietnam. A number of other intaglios, lamps, and bronze figures found in Southeast Asia are Indian facsimiles of Roman-style products.³⁸ These items, both authentic and replicated, were shipped through intermediaries from India. This demonstrates at least a small demand for Roman products in Southeast Asia. Indo-Rome trade reached its peak between the first and third centuries C.E. An increasing demand for Roman luxury items compensated for the decreased value of Roman coinage. Numerous small coastal trading centers in peninsular Southeast Asia emerged during this economic “boom,” catering to the steady East-West trade.³⁹

Early Crossroads in Southeast Asia

The jutting arm of the Malay Peninsula divides the Bay of Bengal from the Gulf of Thailand and South China Sea. It created a natural break in the flow of trade between east India and the ports of Indochina. Overland trails across the narrow Isthmus of Kra connected East to West (Fig. 15). Light and valuable items would have been portaged

³⁷ Indrawooth 2004, 122.

³⁸ Ray 1994, 112.

³⁹ Manguin 2004, 285.

across the isthmus, while heavy and unwieldy cargos would have circumnavigated the peninsula via the Strait of Malacca.⁴⁰

Numerous small costal trading centers arose along coasts of the Malay Peninsula during the Proto-Historic period, taking advantage of this geographic choke point. Fishing and sailing communities integrated into the wider transportation network, moving people and cargo throughout the coastal zones.⁴¹ They facilitated the exchange of goods and provided a safe harbor for ships that had to wait out the monsoon. Chinese sources indicate that the peninsular entrepôts played a critical role in trade, and were home to large communities of foreign merchants (Indian and Iranian), as well as Brahmins.⁴²

Both coastal and open-water routes across the Bay of Bengal converged on the harbors of the arcing west coast of the Malay Peninsula. Archaeological evidence from these sites indicates strong connections to India. In addition to facilitating East-West trade, the emerging peninsular entrepôts had access to critical mineral resources in alluvial tin and gold.⁴³ Tin was a particularly important Southeast Asian commodity because it was used extensively in India for bronze coins, figurines, and implements.⁴⁴ The largest of these coastal ports emerged along the east coast of the Malay Peninsula around the Gulf of Thailand.

⁴⁰ Manguin 2004, 294–5.

⁴¹ Ray 2005, 307.

⁴² Manguin 2004, 294–5.

⁴³ Christie 1995, 248; Ray 1994, 104.

⁴⁴ Ray 1994, 116.



Fig. 15: A map showing the overland trails across the Isthmus of Kra, and the extent of the Kingdom of Funan during the third century C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary and trade route data from Manguin (Manguin 2004, 284, Fig. 12.1; Natural Earth 2014).

Sometime around the first century C.E., a number of polities in the Mekong Delta consolidated their power to form a proto-state known, through Chinese sources, as Funan (Fig. 15). In the early third century C.E., Funan conquered a number of trading centers along the east coast of the Isthmus of Kra. Chinese envoys reported that Funan forces assembled a great fleet of ships, sailed across the sea, and attacked more than ten “kingdoms” along the coast of the Malay Peninsula.⁴⁵ The nature of this conquest is uncertain, as the peninsular polities continued to send envoys to China.⁴⁶ During the following centuries, Funan maintained direct control of East-West trade passing over or around the peninsula. Goods from India and from throughout the Indonesian archipelago were funneled to the ports of Funan, which became Southeast Asia’s gateway to China.

The Mekong Delta site of Óc Eo was one Funan’s primary ports. Archaeological investigations at the Óc Eo complex have revealed artifacts from China, India, Persia and the Roman provinces, demonstrating its cosmopolitan nature.⁴⁷ In addition to dominating Southeast Asia’s maritime network in the Late Proto-Historic period, Funan’s rulers drew power from a highly-developed landed base. A productive wet-rice cultivation system allowed Funan to create a rice surplus, essential for provisioning passing ships.⁴⁸

⁴⁵ Hall 1985, 64; Ray 1994, 104.

⁴⁶ Manguin 2004, 296.

⁴⁷ Hall 1985, 59.

⁴⁸ Hall 1985, 49–57.

Emergence of the Java Sea Trade

While Funan remained the axis of Southeast Asian trade throughout the Late Proto-Historic period, trading networks throughout insular Southeast Asia were also active. The Indonesian Archipelago and Malay Peninsula held a mythic status in ancient Indian literature, and were referred to as the “Islands of Gold” and “Land of Gold.” The first mention is in the *Rāmāyaṇa*, India’s first epic from the fifth or fourth century B.C.E.⁴⁹ Other first millennium sources mention the riches of the far isles, and by the second century B.C.E. (in the post-Mauryan period) India had developed a hunger for Southeast Asian gold, aromatics, spices, exotic forest products such as agarwood, sandalwood, and camphor.

Material evidence from early sites in Sumatra indicates that populous communities developed along the straits of Malacca and Bangka during the Proto-Historic period. Communities located on river estuaries could control the trade of products flowing from Sumatra’s rich interior. Manguin points out that these zones produced valuable forest products into the modern period, including alluvial gold, ivory, antler, tortoise shell, animal pelts and a variety of valuable woods.⁵⁰

Although the island of Java was known for its spices and bountiful agricultural products, it was always poor in metals. This imbalance stimulated trade between Java and mainland Southeast Asia in the early Proto-historic period.⁵¹ By the third and fourth centuries C.E., these trading routes were well established, and the Sunda Strait between

⁴⁹ Manguin 2004, 293.

⁵⁰ Manguin 2004, 286–7.

⁵¹ Christie 1998, 345.

Java and Sumatra emerged as an important secondary trading center. Javanese entrepôts began providing local products to compete with those imported from East and West. Ports along the Sunda Strait became the nexus for goods originating throughout the eastern archipelago and Spice Islands. Hall suggests that this industry represented “the indigenous response to the potential for trade provided by the new maritime activities.”⁵²

The ports of Funan, however, remained as intermediaries between the archipelago, India and China. Regional Java Sea products were funneled from the Sunda Strait to entrepôts along the Vietnamese coast where they joined the swift East-West trade current. Western, Indian, and Chinese sources recount the allure and value of cinnamon, cardamom, cloves, and other exotic Indonesian spices. While the trade in spices remained nascent in the third century C.E., spices played an increasingly important role in the Southeast Asian economy as East-West trade shifted from land routes to the sea. The developing spice trade catalyzed the development of trading communities throughout the Indonesian Archipelago. Bellina and Glover argue that “the trade in cloves, nutmeg, and mace transformed Moluccan society from scattered kin-based communities of hunter-gatherers and shifting cultivators to stratified coastal trading states and petty empires.”⁵³

⁵² Hall 1985, 21.

⁵³ Bellina and Glover 2004, 70.

Transitions in Southeast Asian Commerce during the Historic Period

The Impact of China and the Silk Road

In the first century B.C.E., fragmented Southwest, South, and East Asian continental trade corridors coalesced into the legendary “Silk Road.” Chinese exploration, military expeditions and diplomatic action during the Han Dynasty (206 B.C.E.-220 C.E.) further consolidated the central-Asian trade network. The resulting commercial and cultural conduit between East and West revolutionized Asian economic development.

The demand for Chinese silk in the West is well known, but the bulk of the textile trade occurred between China and India. Merchants began transporting significant quantities of silk cloth from China to India beginning in the Mauryan period (322-183 B.C.E.). Trade escalated over the subsequent centuries. Even after silk production guilds emerged throughout South Asia (prior to the fourth century C.E.), Chinese silk remained an important commodity.⁵⁴ Cotton from India flowed the other way. Although China was producing its own cotton by the middle of the first millennium C.E., Indian cotton remained an important export until the middle of the second millennium C.E.⁵⁵ Along with textiles, a wide variety of ceramics, metal products, jade, ornamental goods, exotic animal products, precious stones, and luxury goods flowed west out of China, accompanied by cotton, dyes, gemstones and spices from India. In exchange, the Silk

⁵⁴ Dale 2009, 81.

⁵⁵ Dale 2009, 83–5.

Road trade routes funneled gold, glass, jewels, perfumes, woolen products, tapestries, carpets, animals, agricultural products and various luxury goods from West to East.

The trade corridors of central Asia destabilized in the second century C.E., forcing merchants to increasingly rely on maritime routes. Early potential evidence of this process is that Indian embassies to China traveled primarily overland until 160 C.E., and traveled by sea thereafter.⁵⁶ The iron hand of Chinese influence in central Asia wavered when the Han Dynasty disintegrated in the early third century C.E. The fall of the Han gave way to the chaotic Three Kingdoms period (220–280 C.E.), when China was ruled by the states Sun Wu, Cao Wei and Shu Han, before temporary reunification of China under the Jin Dynasty (265-420 C.E.). The Eastern Jin (317-420 C.E.) was cut off from primary access to the Silk Road caravan routes in the second half of the fourth millennium C.E. This forced the kingdom to pursue new maritime connections to compensate for the loss of profitable overland trade. The move to maritime trade triggered an economic revolution in Southeast Asia during the fifth century.⁵⁷

East-West trade drove the development of exchange networks during the historic period. It became increasingly important to secure trading rights with China, as China's favor ultimately determined the overall tides of Southeast Asian trade. Emerging entrepôts depended on official recognition by the Chinese government to become prosperous international ports.⁵⁸ Southeast Asian proto-states paid tribute to secure trading relations with the ruling Chinese Dynasty. Merchants from an officially

⁵⁶ Hall 1985, 38.

⁵⁷ Hall 1985, 39, 72.

⁵⁸ Hall 1985, 42–3, 256.

recognized state received preferential treatment. The tribute system allowed China to guide the flow of trade passing through maritime Southeast Asia. Throughout the first millennium, China pursued a policy of consistency and stability by giving long term preferential trading status and support to dominant states that could control trade and suppress piracy.⁵⁹ During the Late Proto-Historic period, China granted preference to Funan.

Fifth Century Transitions

The disruption of the Central Asian trade routes and an emerging demand for Indonesian Archipelago products generated significant transitions in Southeast Asian shipping by the early fifth century C.E. The Strait of Malacca evolved into the primary conduit for East-West trade. The portage across the Isthmus of Kra was largely abandoned and Funan's previously indispensable ports succumbed to inferior status.⁶⁰

In a period when Chinese merchants were seeking new maritime conduits for their goods, developments in seafaring facilitated a shift from coastal routes to long-distance open-sea sailing. Ships could traverse the Bay of Bengal, Gulf of Thailand, and South China Sea much faster via the direct route than by following the jagged coast. This change is apparent in the travel accounts of Chinese observers. In the 240s C.E., Sun Wu envoys visited Funan. K'ang T'ai reported that "the Gulf of Siam is of great extent and ocean-going junks have not yet crossed it direct."⁶¹ According to his report,

⁵⁹ Hall 1985, 42–3.

⁶⁰ Hall 1985, 41.

⁶¹ Wheatley 1961, 16.

the coastal route from Tun-sun (a port on the upper Malay Peninsula) to Funan took thirty days. In contrast, the Chinese Buddhist monk Faxian sailed from Sri Lanka to China in 413-414 C.E. He made the open sea passage across the Bay of Bengal from Sri Lanka to the Strait of Malacca (instead of across the Isthmus of Kra), proceeded to the west coast of Borneo (instead of along the peninsula), and then across the South China Sea directly to China (completely bypassing Funan). The entire trip took around three months.⁶²

East-West trade catalyzed state formation in early Southeast Asia.⁶³ During this period, emerging entrepôts in Sumatra and Java began to trade directly with China. Diplomatic discourse between China and the Islands of Java and Sumatra was underway by the mid-fifth century. In 430 C.E., the west Javan polity Ho-lo-tan (near modern Jakarta) sent envoys to China seeking the protection of ships that regularly sailed to China; six additional diplomatic missions were sent by 453 C.E. Ho-ling, on the central-north coast of Java, sent missions in 430 and 450 C.E. The first recorded missions from Sumatran polities occurred between 454 and 464 C.E.⁶⁴ In addition to embassies originating from Javanese and Sumatran polities, China sent its own missions to three Indonesian polities in 449 C.E. Hall argues these diplomatic missions are evidence that China recognized Funan's ports were no longer instrumental components of East-West trade.⁶⁵

⁶² Fa-hsien 1886.

⁶³ Hall 1985, 256.

⁶⁴ Miksic 2004, 238; Wolters 1967, 157.

⁶⁵ Hall 1985, 72.

Once they became directly integrated into East-West trade, Javanese and Sumatran commercial centers capitalized on the flow of trade to market Indonesian products and spices from throughout the archipelago. Advances in wet-rice agriculture created food surpluses used to provision passing vessels. In this environment, Sumatra developed into a “favored coast,” ideally positioned to facilitate trade with India, China and the Spice Islands.⁶⁶

Indonesia’s Classical Civilizations

The seventh century C.E. marks the beginning of Indonesia’s Classical period, characterized by state formation, expanding agrarian power structures, and extensive temple construction sponsored by elite groups. Miksic divides the Classical period into three stages.⁶⁷ The Early Classic period extended from the 7th to 10th centuries C.E. During this period, the archipelago was dominated by the Śrīvijayan state in Sumatra, and the Sañjayan and Śailendran Dynasties in Java. It ended with the collapse of Central Javanese civilization following a great disaster, possibly a volcanic eruption.⁶⁸

The Middle Classic period lasted from the 10th to 13th centuries C.E. In Java, it was marked by a lull in temple construction and full monetization of the economy. Śrīvijayan maritime dominance weakened during this period. It battled with Java’s Mataram Kingdom and was decimated by Chola raiding fleets from India’s Coromandel

⁶⁶ Hall 1985, 72.

⁶⁷ Miksic 2004, 234.

⁶⁸ Miksic 2004, 244.

Coast.⁶⁹ The Late Classic period continued from the 13th to 15th centuries C.E. Javanese ports emerged as the primary hubs of the spice trade. The islands of the eastern Indonesian Archipelago became increasingly specialized in spice production, while Java provided surplus rice and served as an ideal conduit for the flow of trade.⁷⁰ The Late Classic period was marked by the rise of Majapahit, the greatest pre-modern empire in Indonesia. It ruled Java and Bali, while its sphere of influence extended from Sumatra to New Guinea. The Late Classic period ended in the 15th century with the decline of Majapahit and ascendancy of Islamic Sultanates throughout Indonesia.⁷¹

Mandala Kingdoms

The Western definition of state does not accurately correspond to Southeast Asian political structures. Instead, scholars use the idea of “Mandala Kingdoms.” Mandalas are religious diagrams that represent the structure of the universe, with the sacred mountain Sumeru at its center (Fig. 16). They consist of nested circles and squares with a central point, and four gates. Mandala kingdoms were defined by centralized political power, and not by their borders.⁷² They relied on complex alliance networks between individual rulers. These alliances were maintained by tribute and reciprocity relationships, and a vassal might pay tribute to multiple overlords. Control was not direct, and overlords did not generally involve themselves with the political

⁶⁹ Miksic 2004, 247.

⁷⁰ Hall 1985, 210.

⁷¹ Miksic 2004, 251.

⁷² Hall 1985, 9.



Fig. 16: A Tibetan painting of a Vajradhatu mandala showing nested circles and squares with a central point, and four gates (102.2 x 77.5 cm distemper on cloth painting from Central Tibet, dated to the ca. late 14th century, from the Kronos Collections, image from The Metropolitan Museum of Art 1999).

affairs of their allies.⁷³ This system resulted in diffuse power structures and fluctuating borders. Thus, Southeast Asia became a mosaic of proto-states with overlapping territory.⁷⁴

Śrīvijaya

In the late seventh century C.E., the emergent state Śrīvijaya consolidated control of ports along the interior Sumatran and Javanese coasts and secured dominion over both the Strait of Malacca and the Sunda Strait, the gates to Southeast Asia (Fig. 17). Śrīvijayan maharajas were patrons of Buddhism, supporting scholarship and encouraging the construction of Buddhist monuments throughout the region. The expansive Śrīvijayan thalassocracy dominated the Maritime Silk Road and Java Sea trade until the 11th century C.E.

Śrīvijaya arose as a city-state (modern Palembang) in southeastern Sumatra. Palembang controlled the Musi River estuary and rich hinterland along the river valley.⁷⁵ Śrīvijaya used conquest, alliances, and oaths to assert its dominance over rival riverine centers and ports, and recruited Malay sea peoples to form a powerful navy. Śrīvijaya drew power from its distributed periphery, and was capable of launching significant attacks throughout the region. The 683 C.E. Kedukan Bukit Inscription records a raid involving more than 200 boats, with a total force potential of 20,000. Hall concludes that

⁷³ Miksic 2004, 239.

⁷⁴ Wolters 1999, 27–40.

⁷⁵ Manguin 2004, 308; Munoz 2006, 113.

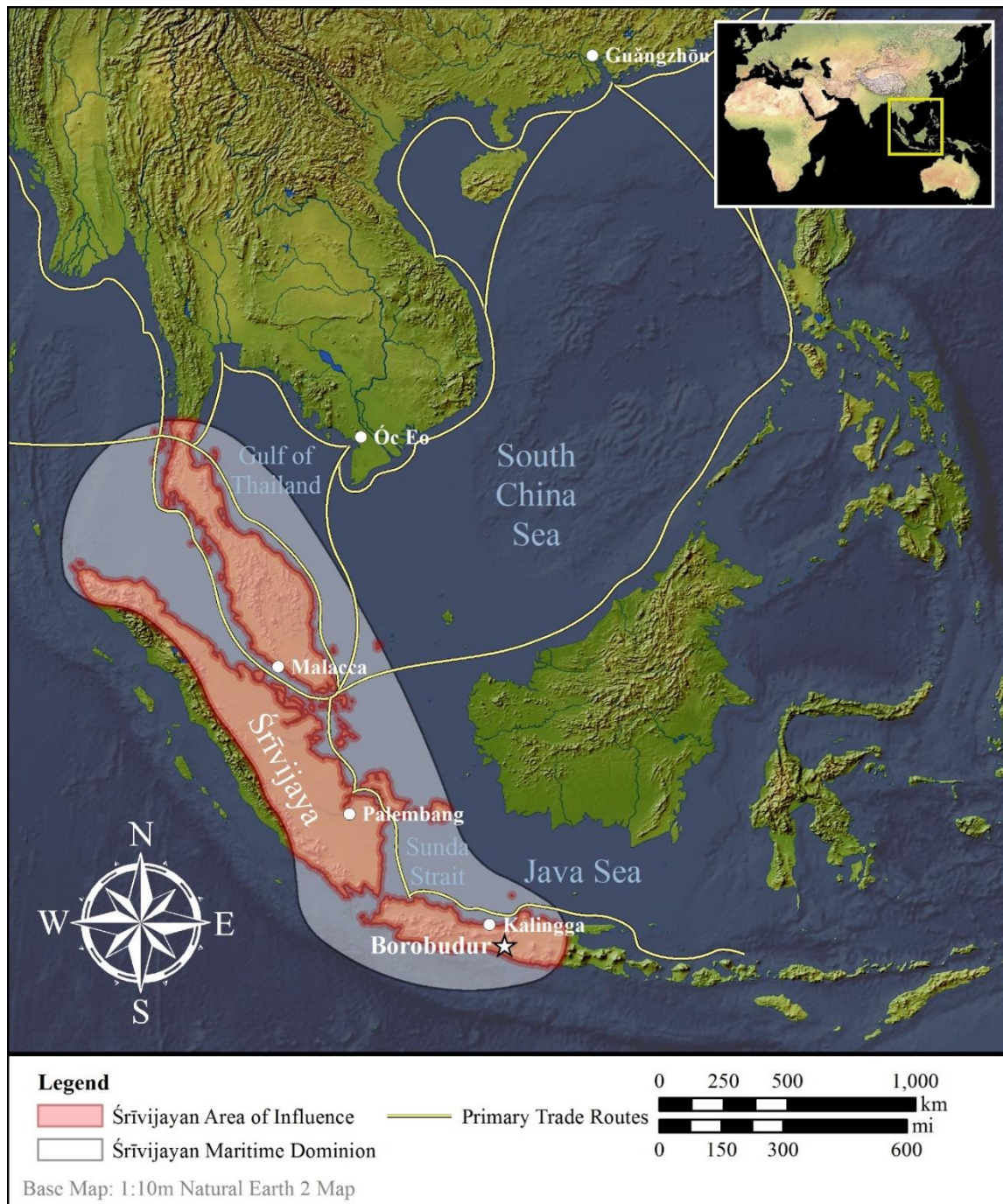


Fig. 17: A map of the territory and sea lanes controlled by Śrīvijaya. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map, trade route data from Manguin, and boundary data from Munoz (Manguin 2004, 284, Fig. 12.1; Munoz 2006, 128; Natural Earth 2014).

Śrīvijaya built a maritime empire “by blending the naval power and commercial skill of coastal ports with the land-force potential of the interior populations.”⁷⁶

During the late seventh and eight centuries, Śrīvijaya expanded its dominion to include coastal centers along the coasts of Sumatra, Java, and the Malay Peninsula.⁷⁷ With naval control of the Strait of Malacca, the Sunda Strait and Karimata (between Java and Borneo), Śrīvijaya grew rich from the flow of trade from between the Java Sea, Bay of Bengal and South China Sea. Śrīvijayan ports integrated coveted goods from the Java Sea Islands into the flow of East-West trade. These commodities included ivory, woods like camphor and sandalwood, spices such as cloves, nutmeg, cardamom, and Java peppers, as well as metals such as tin and gold. Additionally, Śrīvijaya’s cosmopolitan ports were ideally situated to accommodate trading vessels waiting for the favor of the monsoon. They offered harbor and storage facilities, crew and passenger accommodations and, due to Sumatra’s rich hinterland, ample food stores for resupply.⁷⁸

One of Śrīvijaya’s significant economic accomplishments was the suppression of piracy in Southeast Asia. Malay sea peoples took full advantage of the wealth generated by the flow of goods between Southeast Asia, India and China, and were the primary shippers in the region.⁷⁹ However, they turned their seafaring prowess to piracy as well. Chinese records relate that “Merchant ships of the barbarians used to transfer Chinese envoys to destinations in the archipelago, and that these seamen profited equally from

⁷⁶ Hall 1985, 79.

⁷⁷ Munoz 2006, 130–2.

⁷⁸ Hall 1985, 78.

⁷⁹ Hall 1985, 98–9; Manguin 2004, 283.

trade and plundering/killing.”⁸⁰ Śrīvijaya seems to have recruited these skilled seafarers to form its navy, turning them from marauding to an anti-piracy force.⁸¹

Śrīvijaya was a dominant state that could suppress piracy, control trade and offer access to numerous luxury items. Hall remarks that “in the eyes of the Chinese, Śrīvijaya was the perfect trade partner. It was able to keep goods moving into the south China ports by servicing vessels voyaging through the Southeast Asian archipelago.”⁸² Śrīvijaya rapidly gained Chinese favor and retained its trading rights through Tang Dynasty rule (618 – 907 C.E.), the cataclysmic Five Dynasties and Ten Kingdoms period (907 – 979 C.E.), and into the reign of the Northern Song (960 – 1127 C.E.). Arab geographers Ibn Khurdādhbih (in 846 C.E.) and Abu Zaid (in 916 C.E.) both recounted the tale of a Śrīvijayan maharaja who threw a gold brick into the ocean each day, saying “look, there lies my treasure” demonstrating his realm’s debt to the sea.⁸³

Mataram and the Śailendra Dynasty

Between the 8th and 10th centuries C.E., Java was divided between the kingdom of Śrīvijaya, which controlled most of Sumatra, the Malay Peninsula, and western Java, and the Kingdom of Mataram (Medang), which controlled central Java (Fig. 18). While maritime trade served as Śrīvijaya’s power base, Mataram was primarily supported by Java’s wet-rice agriculture. Disruptions in trade between Java and China at the end of the Tang period resulted in the internalization of Java’s economy, and focus shifted from the

⁸⁰ Wang 1998, 20.

⁸¹ Hall 1985, 42.

⁸² Hall 1985, 21.

⁸³ Tibbetts 1979, 29.



Fig. 18: A map of the Kingdom of Mataram showing the political core in Central Java, prior to the 10th century C.E. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary data from Munoz (Munoz 2006, 128; Natural Earth 2014).

coast to the agrarian interior. The redistribution of economic power stimulated the prolific temple building throughout Mataram during the eight to tenth centuries.⁸⁴

Mataram seems to have been controlled by two competing families, the Shaivist Sañjaya and Buddhist Śailendra Dynasties. The relationship between these two dynasties is unclear. Hall notes that “Javanese history is perhaps the least understood and most controversial among that of Southeast Asia's classical civilizations, despite epigraphic and archaeological records surpassed only in Cambodia and Burma.”⁸⁵ Mataram was founded in 732 C.E. by Sañjaya, who established a powerful dynasty which would last to the tenth century C.E. By the middle of the eight century C.E., the Śailendra Dynasty emerged as the dominant power in central Java. Their reign was short lived, and lasted only a century.⁸⁶ Balaputra was the last Śailendran maharaja to rule in central Java. In the 850s, a coalition of local chiefs ousted Balaputra, who fled to Śrīvijaya where he eventually assumed rule.⁸⁷

The origin, nature, and fate of the Śailendra Dynasty is uncertain. Scholars have suggested that the Śailendras were a branch of the Sañjaya Dynasty, a rival elite, or one of three competing Javanese dynasties⁸⁸. Scholars have argued that the Śailendras originated outside of Java, arriving from Sumatra, India, or Funan.⁸⁹ The relationship between the Śailendras and Śrīvijaya is also unclear. Theories suggest that the Śailendras

⁸⁴ Christie 1998, 346.

⁸⁵ Hall 1985, 103.

⁸⁶ According to de Casparis, the Śailendras were in full control of central Java by 770 C.E., peaked in 832 C.E., and had faded by 856 C.E. (de Casparis 1981, 58).

⁸⁷ de Casparis 1956; Hall 1985, 111; Munoz 2006, 143–5.

⁸⁸ Zakharov 2012, 13–9; Jordaan 2006, 3–22.

⁸⁹ Jordaan 2006; Zakharov 2012.

ruled or conquered Śrīvijaya,⁹⁰ were allies of Śrīvijaya or alternately, their vassals.⁹¹ These debates are based on epigraphic nuances, and framed by a variety of competing political theories, and are therefore, far beyond the scope of this study. This thesis largely follows Hall's description because it focuses on the practical aspects of local Śailendran rule and monument construction, apart from concerns of their ultimate origin or relation to Śrīvijaya.

There is some consensus that the Śailendras were a landed elite whose power base arose from wet-rice agriculture in Java's fertile Kedu plain. They adopted the title of *maharaja* to differentiate themselves from other subordinate or competing powers.⁹² Like Śrīvijaya, the Śailendras were Buddhist, and supported the construction of religious monuments throughout Java.⁹³ As Shaivism was the predominate religion in Java, Śailendran support of Buddhism may have been intended to separate them from competing Javanese powers or to align their interests with Śrīvijaya.

The Śailendran maharajas modeled their rule on Indian forms of kingship and the ideal of the *cakravartin*, a universal monarch who rules through spiritual authority instead of political might.⁹⁴ They exercised ritual sovereignty instead of political authority, drove the construction of religious temples, and supported monasteries.⁹⁵ The priesthood in turn blessed and legitimized the maharaja's rule through religious ritual and ceremony.

⁹⁰ Jordaan 2006, 3–22.

⁹¹ Zakharov 2012, 20–3.

⁹² Hall 1985, 132.

⁹³ Hall 1985, 109.

⁹⁴ Miksic 2004, 239.

⁹⁵ Hall 1985, 118.

As with other mandala kingdoms, the strength and position of Śailendran rule does not seem to have been based on military force or superior economic power, but on a complex alliance network. Endowments to religious orders and temple construction played a central role in the development of these political networks in ancient Java.⁹⁶ Regional chiefs oversaw clusters of farming villages and were entitled to a share of local production and labor. They could temporarily assign these labor rights and resources to public works projects to stimulate the local economy (improving irrigation, constructing bridges, etc.).⁹⁷ These labor/resource rights could also be temporarily assigned to temple construction, or permanently granted to support a religious order. In return, the religious orders conducted rituals and blessings, legitimized the rule of the chief, and increased their prestige. The myriad of Hindu and Buddhist monasteries, temples, and shrines of all sizes commissioned throughout Java is a testament to the importance of religious donation during the Early Classic period.

This complex reciprocity network helped the Śailendras to rapidly expand the Buddhist cult in Java. It also provided the physical resources to complete their architectural and religious masterpiece, Borobudur, which stands as the dynasty's greatest accomplishment. It served as the center of Śailendran political and spiritual power, and was a physical representation of the cosmic order manifested on earth.⁹⁸ It elevated Java's status as a center for scholarship and Buddhist teaching, and increased the spiritual prestige of the Śailendra court. Borobudur was, most importantly, a place of

⁹⁶ Hall 1985, 117.

⁹⁷ Hall 1985, 114–8.

⁹⁸ Hall 1985, 110.

pilgrimage. It drew Buddhists from throughout Indonesia, China, and India, integrating Java into the wider Buddhist maritime network.

The Buddhist Maritime Network

Buddhism in Southeast Asia was intimately connected with developments in seafaring and maritime trade. Buddhist practice underwent a series of transformations at the same time that long-distance maritime trading networks coalesced throughout Asia. Hall concludes that Buddhism (specifically the *Mahāyāna* school) was “a response to a dynamic and expanding world, a world intimately connected to commerce.”⁹⁹ Scholars have suggested that Buddhist departures from Brahmanical traditions helped drive the development of overseas trade and merchant networks in the early first millennium C.E. These departures removed stigmas associated with travel, trade, and outsiders¹⁰⁰ and embraced private wealth as a vehicle that could serve spiritual needs.¹⁰¹ The Buddha had several important patrons who were rich merchants. One of the most important is Anāhapindika, who donated the land for the Jetavana monastery, where the Buddha delivered the majority of his teachings.¹⁰²

Buddhism’s universalist doctrines made it accessible to people outside of India’s caste systems, facilitating its adoption throughout East and Southeast Asia.¹⁰³ Ray describes the relationship between Buddhism and trading networks as an “interactive

⁹⁹ Hall 1985, 37.

¹⁰⁰ Wheatley 1983, 272.

¹⁰¹ Holcombe 1999, 280.

¹⁰² de Casparis 2000, 56.

¹⁰³ Ray 1994.

support system that constantly evolved and adapted itself between 300 BC and AD 300.”¹⁰⁴ Pilgrims, missionaries, monks and nuns traveling between India and China spread Buddhist teachings along the trade corridors and established monastic communities throughout East and Southeast Asia. These communities conscientiously served the spiritual and material needs of the laity, creating intimate connections with local villages and trading groups.¹⁰⁵

Many of these initial “transmitters” followed the sea routes that connected India, Sri Lanka, Southeast Asia, China, and the Indonesian Archipelago. In his dissertation, *A Study on the Origin and Significance of Borobudur*, Hudaya Kandahjaya calculates that between the 3rd and 16th centuries C.E. the number of Buddhist transmitters traveling by sea was roughly equivalent to those traveling by land. Perhaps more significantly, many of the travelers who went by sea would eventually play critical roles in the development of Buddhism.¹⁰⁶ Through the influence of their founders, religious centers along the sea route joined the frontiers of Buddhist thought.

Early Buddhist Travelers in the Indonesian Archipelago

During the Proto-Historic period, the Indonesian archipelago was simply a highway between India and China. Few pilgrims stopped for long among the islands. Despite only transient contact, these “transmitters” significantly contributed to the diffusion and adoption of Buddhism. The Buddhist monks Faxian (337 – c. 422 C.E.)

¹⁰⁴ Ray 1994, 122.

¹⁰⁵ Ray 2005, 320.

¹⁰⁶ Kandahjaya 2004, 73–9.

and Gunavarman (367–431 C.E) are two of the most important figures who traveled through the Indonesian archipelago during the pre-Classical period.

Faxian's lengthy travel account, *A Record of Buddhist Kingdoms*, is the most informative resource available concerning early Buddhist practice in India and Southeast Asia. Frustrated with the limited and degrading condition of Buddhist scripture available in China, Faxian organized an expedition to India in 399 C.E. to collect critical Buddhist works and iconography. He returned to China in 414 C.E. with a large collection of images and Buddhist texts, and spent the remainder of his life translating the *Mahāparinirvāṇa Sūtra* and the *Vinaya* (rules of monastic discipline).¹⁰⁷

Already in his early sixties when he set out, Faxian began his grueling pilgrimage to India by travelling on foot through the wastes of Central Asia. He stayed in India for a decade, traveling to important centers of Buddhist learning and sacred sites. He chose to return by sea, traveling first to Sri Lanka, where he stayed and studied for two years, collecting new works. Faxian spent five months in Indonesia in 413 C.E. He described Buddhism there as “not worth speaking of” and noted that Brahmanism was flourishing.¹⁰⁸

The first account of founding a Buddhist community in Indonesia comes from the biography of Gunavarman, a monk born in Kashmir (367 C.E.) as part of the *Kshatriya* caste (ruling warrior elites). Gunavarman's lineage gave him the opportunity to leave monastic life and assume the rule of Kashmir. Hundreds of ministers beseeched

¹⁰⁷ Fa-hsien 1886.

¹⁰⁸ Fa-hsien 1886, 113.

Gunavarman to take the throne. He refused and fled into the wilderness, eventually making his way to Sri Lanka where he continued his studies. Around the turn of the fifth century C.E., he sailed to west Java (She-p'o), where he converted a small kingdom (chiefdom).¹⁰⁹

According to the story, the queen-mother had a vision of a holy man in a flying boat. Gunavarman arrived in Java the next day and converted both her and the king to Buddhism. Gunavarman's good works and wise counsel quickly made him a trusted advisor to the king, who became increasingly religious. Inspired by Gunavarman's teaching, the king (like Gunavarman) decided to renounce his throne and become a monk. His ministers pleaded with him not to abandon his kingdom. He agreed to stay on three conditions: that whole country should respect Gunavarman and his teachings; that none should kill; and that alms should be given to the poor and sick. Word of the kingdom's conversion spread throughout the Buddhist world. Emperor Wen (r. 424–453 C.E.) of the Liu Song dynasty sent envoys to summon him 424 C.E., but by the time they arrived in Java, Gunavarman had already set sail. Originally intending to travel to a kingdom in mainland Southeast Asia, Gunavarman was blown off course and sailed directly to southern China, “driven by the wind of his Karma.”¹¹⁰

It is significant that the queen-mother had a vision of Gunavarman arriving in a ‘flying’ boat, as it highlights the central role that sea-traffic played in the spread of Buddhism. Numerous monks from India and China would follow Gunavarman and

¹⁰⁹ Stache-Rosen 1973, 6–12.

¹¹⁰ Stache-Rosen 1973, 6–12.

Faxian along the sea route.¹¹¹ Some of these Chinese and Indian pilgrims remained permanently in Java and Sumatra, and Buddhist practice blossomed throughout insular Southeast Asia. Over time, the pilgrimage network became more complex, and by the seventh century, Southeast Asia transformed from a highway to a crossroads.¹¹²

Buddhist Travelers in the Classical Period

Between the seventh and tenth century C.E., Indonesian religious centers in Śrīvijaya and Kalingga developed into international destinations. Monks from China, mainland Southeast Asia and India began travelling to Buddhist centers throughout the Indonesian archipelago, while monks from Indonesia journeyed to China and India to further their understanding of Buddhism.¹¹³

Hundreds of years after his initial journey, Faxian's travels continued to inspire monks to follow in his footsteps. One of the most significant was the Chinese monk Yijing (635 - 713 C.E.). In 671 C.E., Yijing joined a Southeast Asian vessel sailing to Bhoga (Palembang), the capital of Śrīvijaya. Yijing recounts that the ship departed just as the East Asian monsoon began to blow, and that they plotted their course by the shifting stars. The journey to Śrīvijaya took only twenty days.¹¹⁴ Yijing spent a year studying at Buddhist centers in Sumatra and the Malay Peninsula before sailing on to India. He reported that at the time of his visit there were more than a thousand practicing

¹¹¹ For a detailed account, see Kandahjaya 2004, 49–53.

¹¹² Kandahjaya 2004, 79–80.

¹¹³ Kandahjaya 2004, 80.

¹¹⁴ I-Ching 1896, xxix.

monks living in the Śrīvijaya's capital city.¹¹⁵ Yijing spent 25 years abroad before returning to China. At the end of his account, Yijing suggested that before proceeding to India, others should follow his example by studying at Buddhist centers in Indonesia to deepen their knowledge of Sanskrit and the Buddhist teachings.¹¹⁶ His suggestion indicates the advanced state of Buddhist practice in the archipelago in the seventh century. By the ninth century, Buddhist masters and magnificent temples in Java and Sumatra were drawing pilgrims and scholars from the far reaches of the Buddhist world. One of the grandest of those destinations was Borobudur.

¹¹⁵ I-Ching 1896, xxxiv.

¹¹⁶ I-Ching 1896, xxxiv.

CHAPTER III

BOROBUDUR

Overview

Borobudur was built by Java's Śailendran Dynasty between 780 and 832 C.E.¹¹⁷ It is one of the most extraordinary structures ever created by human hands. Located in central Java, the Buddhist monument is a massive, terraced pyramid decorated with thousands of reliefs (Fig. 19). If aligned end to end, they would stretch over three kilometers. The reliefs on the lower levels depict the core Buddhist teachings (the laws of *karma*, stories of the Buddha's historical incarnation, stories of his previous lives, and stories of other saintly figures). The reliefs on the upper levels of the monument focus on the esoteric aspects of obtaining insight and enlightenment. Although scholars have debated the origin, design and purpose of Borobudur for two centuries, the nature of the monument remains a mystery. Scholars have alternately suggested that Borobudur represents a cosmic mountain, a mandala, a stupa, a temple or an outgrowth of megalithic forms. It is known to have been a place of pilgrimage, and attracted visitors from throughout the Buddhist world.

Origin

Borobudur was commissioned by the Buddhist Śailendra family. The Śailendras had emerged as central Java's dominant power during the eighth century C.E., and

¹¹⁷ de Casparis 1981, 68; Miksic 2010, 29.

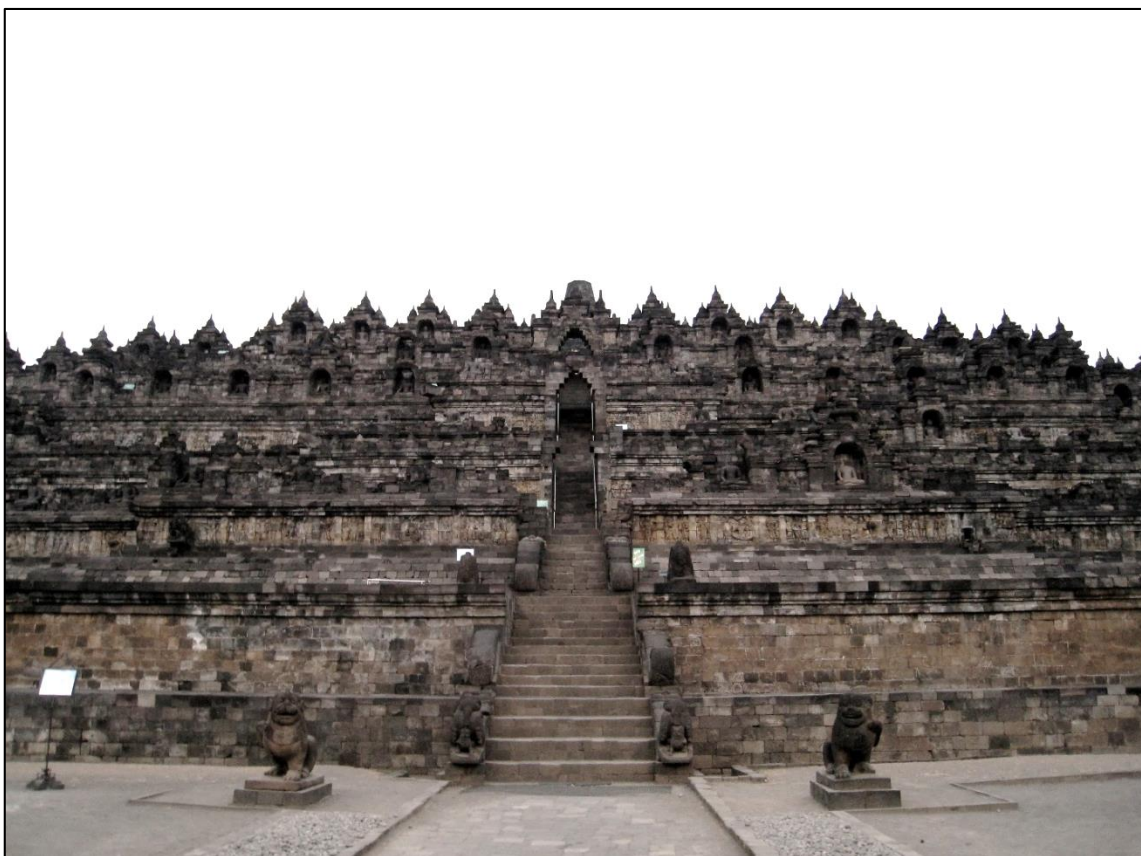


Fig. 19: Staircases leading up the face of Borobudur (photograph from Anandajoti 2009a).

although their reign in Mataram was short lived (from around 770 to 856 C.E.¹¹⁸), they deeply altered Java's religious landscape. At the start of the Classical period, Shaivism was deeply entrenched in central Java. Hindu monuments, erected by Java's regional chiefs and ruling elite, were scattered across the landscape.¹¹⁹ While Gunavarman (367–431 C.E.) had introduced the *Sarvāstivāda* sect of Buddhism to Java in the fourth century C.E., it took Buddhism several centuries to establish itself in central Java. Information concerning the development and progression of the religion is minimal until Yijing's account three centuries later, in which he reported that *Sarvāstivāda* Buddhism was flourishing in the coastal areas.¹²⁰ While traveling monks, nuns and pilgrims continued to steadily spread Buddhism throughout Southeast Asia, it was Śailendra patronage that transformed Java from a Buddhist frontier to a nexus of scholarship and pilgrimage. By the height of Śailendran rule in the ninth century C.E., inscriptions from Champa indicate that central Java was internationally recognized as a “treasure house” of sacred learning.¹²¹ Miksic argues that the “originality and sophistication of Javanese Buddhist architecture indicate that Indonesians were making significant contributions to the world's most widespread religion at that time.”¹²² Borobudur stands as Śailendra's greatest contribution to the religion.

¹¹⁸ de Casparis 1981, 59.

¹¹⁹ It is probable that the Śailendras were also originally Shaivist (Soekmono 1976, 10).

¹²⁰ Ray 2005, 317.

¹²¹ Ray 2005, 317–8; Wolters 1999, 49, 62.

¹²² Miksic 2004, 242.

Location

Borobudur is located in the midst of Java's fertile Kedu Plain (Fig. 20). Known as the "Garden of Java," the plain is enclosed by high mountains and two sets of twin volcanoes (Fig. 21). Mt. Sumbing and Mt. Sindoro rise in the northwest, while Mt. Merapi and Mt. Merbabu stand guard in the northeast. Mt. Merapi has erupted more than 30 times since Borobudur was built, belching forth ash and pyroclastic flows.¹²³ Despite this danger, the Kedu plain was densely inhabited during the Classical period, with numerous agricultural villages and towns.¹²⁴ The Progo and Elo Rivers cut through the heart of this walled garden, joining beneath the southern ridges. In the Classical period of Javanese history, this confluence developed into a sacred space occupied by a myriad of Hindu and Buddhist monuments.¹²⁵

In 1931, the Dutch painter and scholar W. O. J. Nieuwenkamp hypothesized that in ancient Java, the confluence of the Progo and Elo Rivers formed a vast lake in the middle of the plain.¹²⁶ He argued that Borobudur's architects had constructed the monument on a rocky island in the middle of the lake, intending it to represent a massive white lotus floating on the surface of the water.¹²⁷ The lotus theme is ubiquitous in Buddhist art. The flower often served as a throne or the base for a stupa, and appropriately, Borobudur's plan resembles a lotus rosette.¹²⁸

¹²³ Setiadi 2010, 211.

¹²⁴ de Casparis 1981, 58–9.

¹²⁵ Soekmono 1976, 1.

¹²⁶ Nieuwenkamp 1932.

¹²⁷ Water features were often incorporated into Southeast Asian monuments, where they represented the cosmic ocean.

¹²⁸ Murwanto et al. 2004, 459.

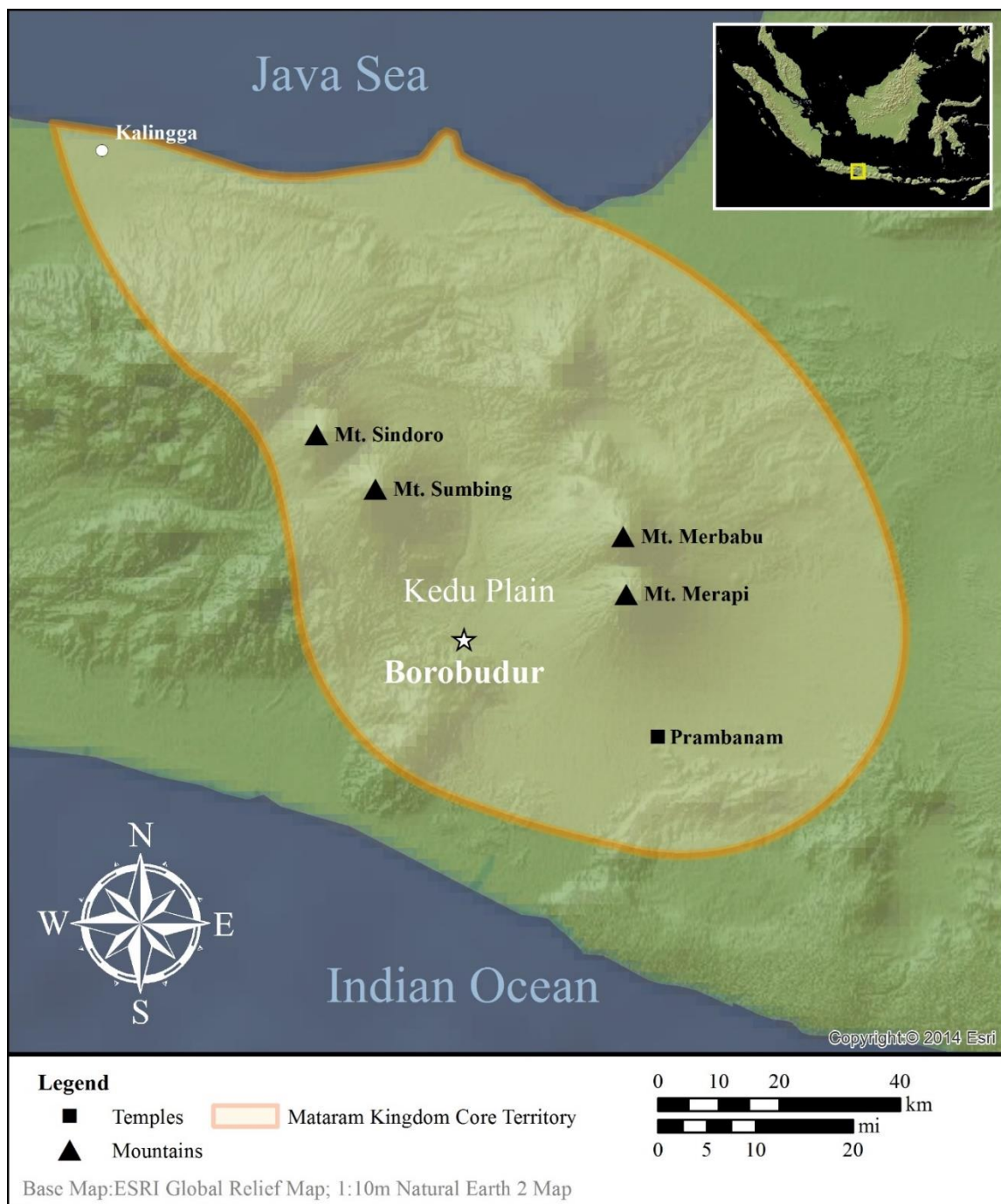


Fig. 20: The location of Borobudur in Java's Kedu Plain. Created by Douglas Inglis using a portion of the 1:10m Natural Earth II map and boundary data from Kartapranata (Kartapranata 2010; Natural Earth 2014).

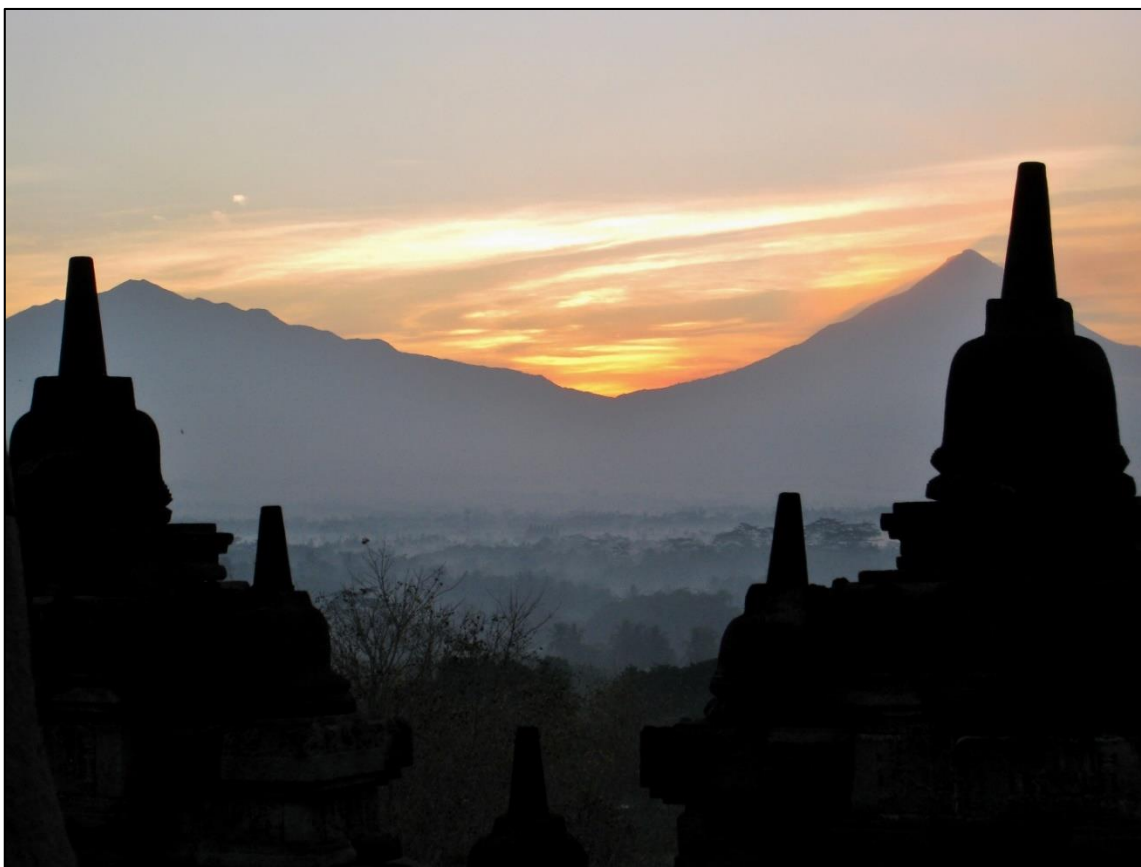


Fig. 21: Mt. Merapi and Mr. Merbabu at dawn, as seen from Borobudur (photograph from Anandajoti 2009a).

Although his views were hotly debated, paleo-environmental analysis has partially vindicated Nieuwenkamp. Geologic studies demonstrate that the Kedu plain was once a giant lake. By 3000 B.C.E. it had partially receded and was slowly beginning to divide. By the ninth century C.E., the lake had become two separate bodies of water. One was centered on the confluence of the Elo and Progo Rivers, while the other existed where the Progo joined the Sileng River. They persisted until sometime between the 12th and 14th centuries.¹²⁹ Casparis noted that even in the modern era, when the rice fields surrounding the monument had not yet ripened, the plain appeared as a giant lake.¹³⁰ The Śailendran architects placed Borobudur upon a narrow islet or peninsula. Seasonal rains and river floods would have given the temple a semi-aquatic character, making the structure itself a component of Java's maritime cultural landscape.

According to legend, the island of Java once floated free in the sea. The gods drove a nail through the center of the island, fastening it to the earth so that people could inhabit it. The flat head of the nail became Mt. Tidar, a hill rising from the plain only 15 kilometers from Borobudur. As Mt. Tidar represented the geographic center of the island, it is probable that Borobudur was meant to represent the cosmological and spiritual center of the Śailendra realm.¹³¹ Casparis suggested that the Śailendras erected Borobudur at the heart of their ancestral homeland. He argued that the Kedu plain was the “cradle of the Sailendras,” the location of their historical seat and political base.

¹²⁹ Murwanto et al. 2004, 462.

¹³⁰ de Casparis 1981, 70.

¹³¹ Hall 1985, 110.

Ancestor worship was important in ancient Java, and Borobudur may have been specifically built to honor the ancestral members of the Śailendra line.¹³²

Design and Symbolism

Construction

The construction of Borobudur was an intermittent, multi-decade processes undertaken between 780 and 832 C.E.¹³³ Although we do not have direct accounts, Buddhist texts provide a glimpse of general temple building procedures during the Classical period. Specialized monastic administrators and overseers (*navakammika* or *navakarmika*) managed construction. An architect drafted the monument's plan on white cloth using vermillion pigment. A skilled mason was hired to direct the project, and drummers recruited artisans from throughout the region.¹³⁴

Temple construction was financed by labor tithes and land grants. A system of religious endowments was at the heart of Javanese politics. It allowed both the maharajas and *rakrayān* (regional chiefs) to demonstrate their piety and support of the royal cult.¹³⁵ The royal court and *rakrayān* could temporarily assign their labor and resource rights to temple construction, or make permanent grants of land and labor to support a religious order. These grants strengthened alliance networks, stimulated regional economies and legitimized the rule of the local elite. During the Early Classical

¹³² de Casparis 1981, 68; Miksic 2010, 29.

¹³³ Miksic 2010, 29.

¹³⁴ Ray 1994, 144.

¹³⁵ Hall 1985, 117.

period, temple construction was a central component of Java's political and economic landscape, and promoted the development of a sophisticated Javanese artisan class.

To ease demands on the agrarian populace, temple construction was probably seasonal. In ancient Java, men tended the irrigation system, plowed and hoed (Fig. 22). The arduous labor of tending the fields fell to women and children. They planted rice, weeded fields and harvested grain. This freed men to work on monuments during the growing season.¹³⁶

The scale of Borobudur is enormous. It was a massive undertaking that required an estimated 55,000 cubic meters of stone.¹³⁷ Laborers quarried andesite boulders from the Kali Progo riverbed. The water-worn stones originated from several upriver sources and were of various shades. The entire structure was whitewashed with plaster to give it a uniform appearance.¹³⁸ The plaster has disintegrated, and as it stands today, the various colors of the volcanic rock give the naked monument an irregular look.

Masons cut the boulders into shape before transporting them to the construction site. Each stone was precisely carved and fitted without mortar. They were held in place with a complex systems of dovetails, mortises and tenons; this resulting structure was slightly flexible, and allowed the monument to weather small tremors and disturbances without collapse.¹³⁹

¹³⁶ de Casparis 1981, 58–9; Hall 1985, 126–7.

¹³⁷ Soekmono 1976, 16.

¹³⁸ Dumarçay 2005, 60, 75–6.

¹³⁹ Soekmono 1976, 15.



Fig. 22: Panel I.B.a.336 depicts a man plowing his fields (photograph from Anandajoti 2009f, fig. 271).

Sculptors carved the bas-reliefs directly into the stone structure of the monument. This is important to keep in mind, because it would be nearly impossible to rearrange or redo the panels if mistakes were made. Borobudur's artisans probably worked from manuscripts.¹⁴⁰ Short inscriptions were found beneath scenes depicted on the hidden foot. They are key words from the *Mahakarmavibhanga*, and may represent instructions to the workmen.¹⁴¹ These instructions would have been covered with plaster once the panels were complete.

Borobudur underwent several phases of construction. Some of the architectural adjustments represent responses to engineering problems. The monument suffered a major collapse when it reached the 56th course of stones and had to be redesigned. The lowest level of the monument was surrounded by a large platform to increase stability of the structure.¹⁴² This level was covered with reliefs, which were completely concealed by the addition, and only discovered again in 1855.¹⁴³ This terrace is now known as the "hidden foot" (Fig. 23).

Although scholars such as Dumarçay and Chihara argue that the hidden foot was buried to stabilize the monument during the construction process, the massive platform may have been more than an engineering solution.¹⁴⁴ Kandahjaya points out that early

¹⁴⁰ The first 34 stories on the bottom row of the first balustrade follow the same sequence as the *Jātakamala*, a collection of stories compiled by the monk Āryaśūra in the fourth century C.E. (Āryaśūra 1895). However, most of panels follow no known sequence (See Chapter IV: Sea Stories).

¹⁴¹ Soekmono 1976, 18. Some scholars (such as de Casparis) argue that they were meant to be read by pilgrims.

¹⁴² Dumarçay 2005, 64.

¹⁴³ Soekmono 1976, 6.

¹⁴⁴ Chihara 1996, 112–22; Dumarçay 2005, 41; Soekmono 1976, 18–20.



Fig. 23: A photograph showing an uncovered portion of Borobudur's hidden foot. The large stones of the casement can be seen to either side (photograph from Anandajoti 2009g, fig. 13).

20th century photographs of Borobudur show it was collapsing outward from the top. Similar problems faced by the ancient builders could not have been rectified by expanding the base. Moreover, the architects heightened the lowest balustrade with a second set of reliefs, further destabilizing the monument. Several authors have also pointed out that some of the reliefs were deliberately defaced, indicating a possible ritual purpose to concealing the lowermost reliefs.¹⁴⁵

Other design changes certainly reflect changes in religious thought or the spiritual vision for the monument. Based on the orientation and design of its innermost levels, Dumarçay suggests that Borobudur was initially a Hindu monument, expanded and adapted by Buddhists.¹⁴⁶ The structure underwent numerous renovations, and it seems the plan was altered several times during the construction process. One of the most striking examples is that the stairs were narrowed to remove perspective effects, and gates were added between the levels. This emphasis probably signifies that access to the upper levels was restricted to privileged groups.¹⁴⁷ The remains of a large lotus pedestal are beneath the first circular terrace. Scholars believe that this indicates that an even larger stupa was meant to crown Borobudur.¹⁴⁸

Fragmentary texts from the *Kayumwugan* (*Karangtengah*) inscription indicate that the Śailendran maharaja Samaratunga and his daughter Princess Prāmodavardhanī supported the construction of a great monument (Borobudur, or a complex of temples

¹⁴⁵ Kandahjaya 2004, 29.

¹⁴⁶ Dumarçay 2005, 10.

¹⁴⁷ Miksic 2004, 242.

¹⁴⁸ Kandahjaya 2004, 27.

including Borobudur), and consecrated it in 824 C.E. The text (after a great deal of interpretation) describes Samaratunga ascending a great structure to a main image described as looking like the orb of the moon (the central stupa) surrounded by balustrades or railings.¹⁴⁹ De Casparis, Sakar and Chandra have all undertaken complicated analysis of this text.¹⁵⁰ Kandahjah goes the furthest, arguing that the inscription describes the numerous changes in Borobudur's plan. These include making the lower part of the monument greater by ten-fold (encasing the hidden foot), abandoning a non-traditional mandala-like structure (the lotus platform) and the creation of an altar like a wheel (the radial stupas on the upper levels).¹⁵¹

Structure of the Monument

Borobudur was built in the shape of a mountain with nine stepped levels. The lowest level, the hidden foot, is decorated with 160 reliefs depicting the *Mahakarmavibhanga* (laws of cause and effect - *karma*). Tall balustrades surround the next five square terraces. The long open-air corridors between balustrades form galleries that encircle the monument (Fig. 24). The walls of each gallery are covered with reliefs. A total of 1,300 narrative panels adorn Borobudur's four galleries. There are also 432 niches in the outer balustrade walls. Each contains a statue of a Buddha (Fig. 25).¹⁵² The niches represent mountain caves where ascetics traditionally meditated.

¹⁴⁹ Kandahjaya 2004, 133–4.

¹⁵⁰ For detailed discussion of their interpretations, see Kandahjaya (2004, 117).

¹⁵¹ Kandahjaya 2004, 134–5.

¹⁵² Soekmono 1976, 18. Five of these hidden reliefs have been uncovered in the modern era for public viewing (Miksic 2010, 43).



Fig. 24: The open gallery corridor created by the back of the balustrade and terrace wall (photograph from Anandajoti 2009e).



Fig. 25: The niches with Buddha statues in Borobudur's balustrades may represent ascetics meditating in mountain caves (photograph from Anandajoti 2009a).

In contrast to the ornate lower levels, the final three terraces are circular and starkly decorated. Each of these levels is topped with a ring of stupas, domed structures that have come to symbolize triumph over *samsāra*, the endless cycle of death and rebirth (Fig. 26). They are places for worship and meditation.¹⁵³ Borobudur's stupas are unique. They are hollow, and made of stone blocks, staggered in a diamond pattern that allows observers to see inside. A statue of a Buddha sits within each of these stupas, staring serenely outward (Fig. 27). There are 72 in all. An enormous stupa sat atop the uppermost level, bringing the total height of the monument to 35 meters above the ground. There is some debate over whether the great stupa once held a Buddha statue, or if it was intentionally left empty.¹⁵⁴

Staircases ascend the monument on all sides and allow access to each subsequent level. In later times, the stairs were altered to change the effects of perspective and ornate doorways were added (Fig. 28). The doors might indicate the increased importance of passage between the levels, and may have restricted access.¹⁵⁵ It is impossible to know who was permitted to pass from level to level. As one ascends the monument, the teachings revealed in the reliefs become more esoteric. Thus, it is likely that access to such sacred knowledge was reserved for those who were prepared for it.

Pilgrims entered the complex through the eastern gate and proceeded clockwise around each gallery, encircling the monument while observing the reliefs. This

¹⁵³ The first stupas were mortuary monuments enshrining the ashes of Gautama Buddha. Often they house Buddhist relics.

¹⁵⁴ Soekmono 1976, 19.

¹⁵⁵ Miksic 2004, 242.



Fig. 26: Photograph showing a rings of stupas on the upper terrace (photograph after Anandajoti 2009a).



Fig. 27: A Buddha statue meditating within a stupa. The stupa was left open during reconstruction; similar closed structures are visible in the background (photograph from Anandajoti 2009a).

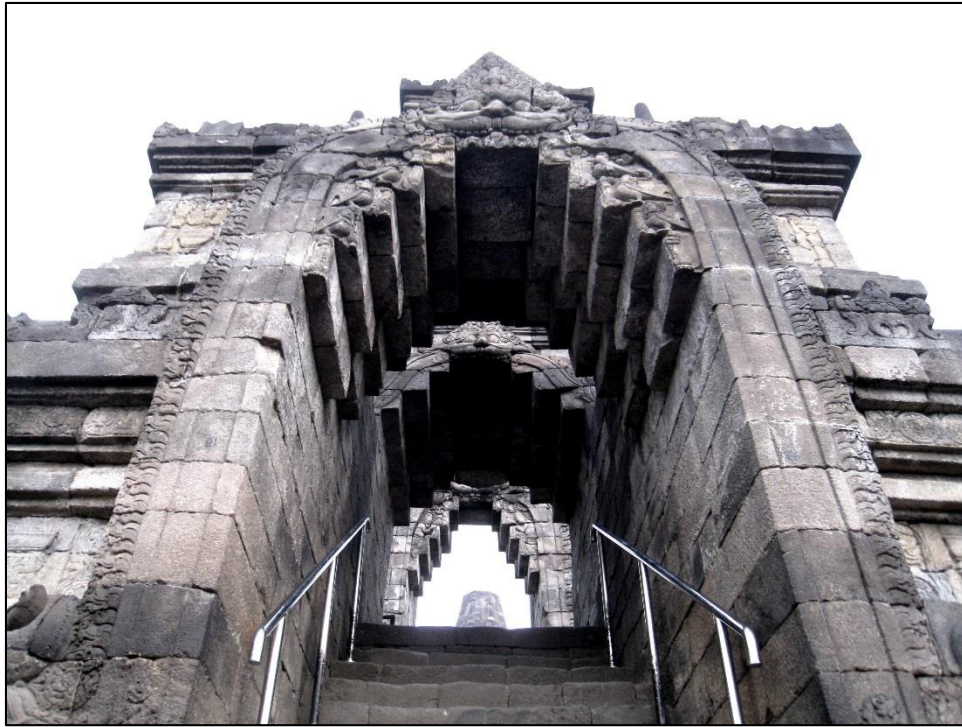


Fig. 28: A photograph of the gates that restrict passage between the levels at Borobudur (photograph from Anandajoti 2009a).

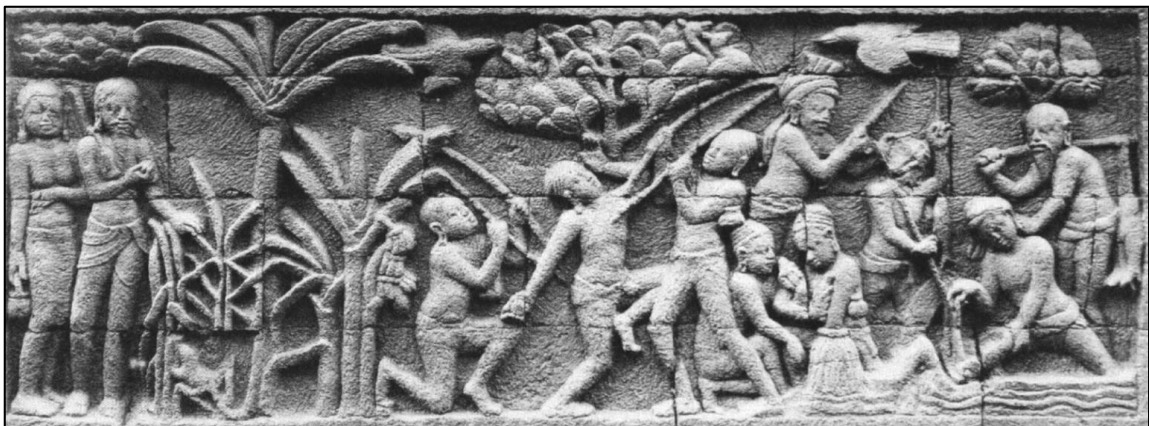


Fig. 29: A panel from the *Mahakarmavibhanga* reliefs on Borobudur's hidden foot. It shows men fishing and hunting birds with bows and stone (from Haryono 2010, 149).

clockwise progression is in keeping with the traditional form of worship at a stupa, the *pradaksina*, which involves solemn clockwise circumambulations.¹⁵⁶ Once inside the first gallery, the high walls of the balustrade cut off the view of the outer world, leaving only the sky above. Surrounded by reliefs of holy figures, miracles and magical stories, the visitor was within a sacred, mystical world.¹⁵⁷

The Reliefs

Borobudur's reliefs display the advanced state of Javanese stonework. The sculptors added elaborate artistic details that vividly capture local Javanese life during the eighth and ninth centuries C.E. (Fig. 29). The reliefs show the lives of peasants, monks, merchants, nobles and artisans. These people are engaged in a grand variety of activities, including pottery making, metallurgy, agriculture, construction, trade, performance, worship and of course, sailing. In addition to the ships, we see accurate representations of houses, temples, carts and wagons that reflect Indonesian technology. It is likely that the craftsmen were local, or drew on local traditions.¹⁵⁸

Different families of narratives are carved on separate parts of the monument (Fig. 30). There are eleven series in all. The hidden foot is decorated with a series of reliefs depicting the *Mahakarmavibhanga*, laws of cause and effect (*karma*). These reliefs contain graphic depictions of sins and their corresponding punishments. In Borobudur's original design, the laws of cause and effect would have been a first lesson

¹⁵⁶ Fontein 2010, 111.

¹⁵⁷ Miksic 2010, 46.

¹⁵⁸ Haryono 2010, 140–78.

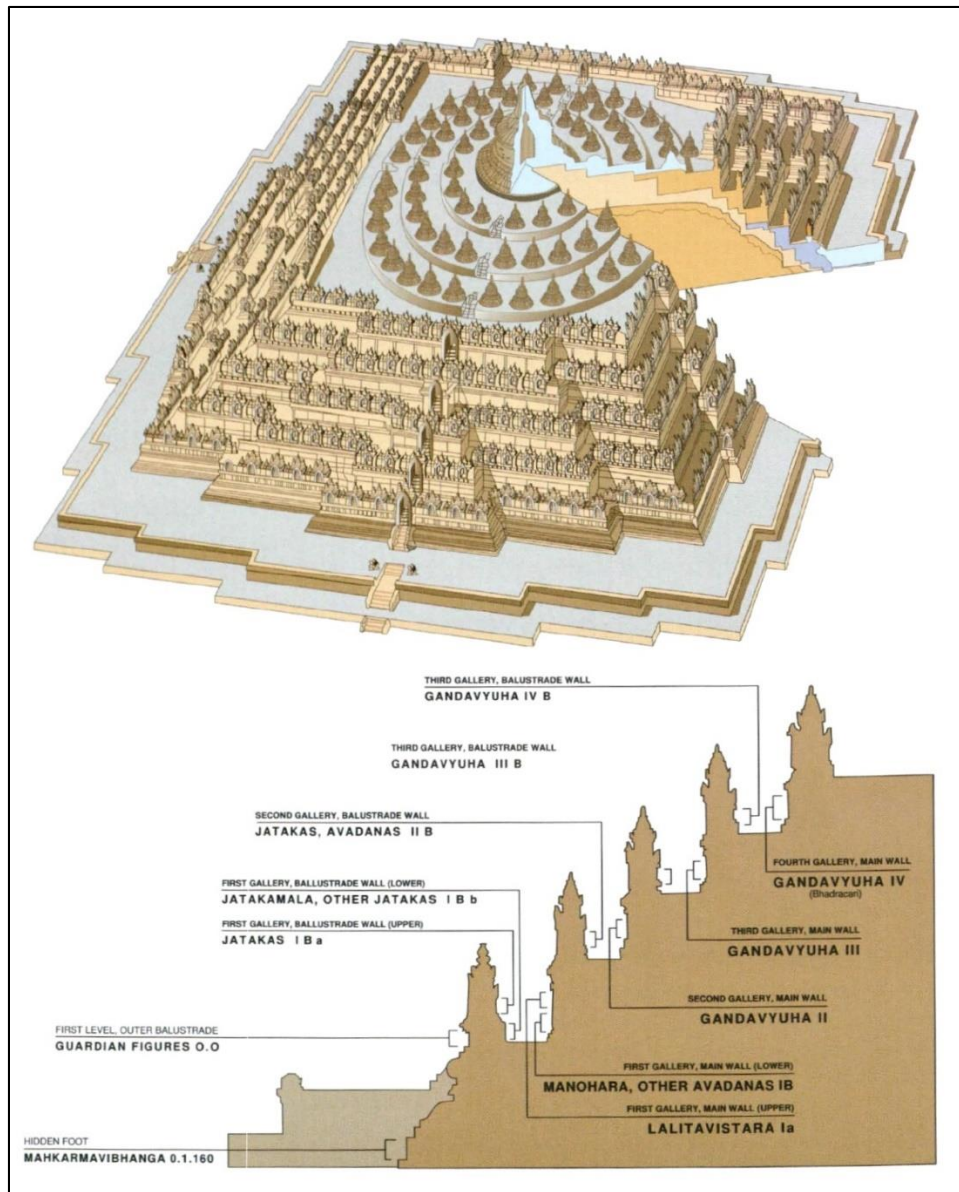


Fig. 30: The position and designation of narratives on Borobudur's galleries (after Magestari 2010, 82).

before visitors ascend to the upper galleries. However, because of stability problems, they were encased by the extended platform, and never reproduced elsewhere on the monument.¹⁵⁹

The first gallery has four series of reliefs. The first series (I.a) runs along the upper half of the main (inner) wall. They depict scenes from the *Lalitavistara*, a collection of stories about the life of Gautama Buddha, in his final (historical) incarnation. *Lalitavistara* can be translated as “the unfolding of the play.” One belief is that the Buddha's last life was a performance for all humankind, meant to reveal the path to enlightenment.¹⁶⁰ Borobudur's version of this story is different from any other known description. While some reliefs resemble conventional Indian depictions, others are completely original.¹⁶¹ The only boat depicted in this series is a river barge in panel I.a.115.

The other three series in the first gallery (I.B.a, I.B.b and I.b) are a mixture of *Jataka* and *Avadana* tales. *Jatakas* are stories about previous incarnations of Gautama Buddha, in both animal and human form. *Avadanas* are stories about other Bodhisattvas and legendary characters. Nine of the eleven boats are depicted in these reliefs. The upper series of reliefs on the first gallery balustrade (I.B.a) was a late addition to the monument. The stones were not integrated into Borobudur's structure, and the carvings are less refined than those found elsewhere. They were probably added to compensate

¹⁵⁹ Miksic 2010, 43.

¹⁶⁰ Miksic 2010, 68.

¹⁶¹ Miksic 2010, 68.

for the loss of those on the hidden foot, once it was encased.¹⁶² The *Avadana* and *Jataka* stories continue on the balustrade of the second gallery (II.B).

The second gallery main wall (II), third gallery (III and III.B) and fourth gallery balustrade (IV.B) are concerned with the *Gandavyuha* (and *Bhadracari*), which tells the story of Sudhana's search for wisdom. Following the instruction of a great bodhisattva, he visits fifty-three spiritual mentors, including Brahmins, monks, a nun, merchants and bankers, kings, goddesses of the night, the Buddha's mother Maya and even Siva. Most importantly for our study, the progression includes a ship captain. Each imparts a spiritual lesson that they have mastered, and sends him on to the next mentor. Eventually Sudhana reaches a high level of insight and must seek advanced guidance from three great Bodhisattvas.¹⁶³ Only one ship (that of the captain) is depicted in these reliefs (II.41, Fig. 31).

Together the reliefs of the hidden foot, the first gallery and second gallery balustrade constitute the core basic Buddhist teaching: the *Mahakarmavibhanga* (laws of karma), the *Jatakas* (stories of the Buddha's past incarnations), the *Lalitavistara* (stories from the Buddha's final incarnation), and the *Avadanas* (stories of other enlightened beings). It is probable that once these basic lessons were mastered, pilgrims would ascend to the upper levels, encountering more challenging and esoteric teachings of the *Gandavyuha* and *Bhadracari*.¹⁶⁴

¹⁶² Miksic 2010, 44.

¹⁶³ Soekmono 1976, 30–4.

¹⁶⁴ Miksic 2010, 71



Fig. 31: Panel II.41, showing Vaira's ship. It is the only vessel depicted on the upper levels (from Van Erp 1923, 28).

It is important to keep in mind that Borobudur's reliefs are not simply illustrations of texts. The stories depicted at Borobudur would have traditionally been "constructed" through visualization meditation. Borobudur's sculptors were attempting to "realize" this process in stone.¹⁶⁵ Visitors were not meant to passively view the images, but actively contemplate them "in the context of ritual, devotional, and possibly meditative practice."¹⁶⁶

Symbolism

Borobudur is unique. There are no architectural parallels among Hindu and Buddhist monuments. After centuries of debate, its ultimate nature remains a mystery. Scholars have alternately suggested that Borobudur represents a cosmic mountain, a mandala, a stupa, a temple or an outgrowth of megalithic forms.¹⁶⁷ Stutterheim and Mus argue that Borobudur was the Buddhist equivalent of a Shaivist *lingam*, a symbol of Shiva and a symbol of supreme authority.¹⁶⁸

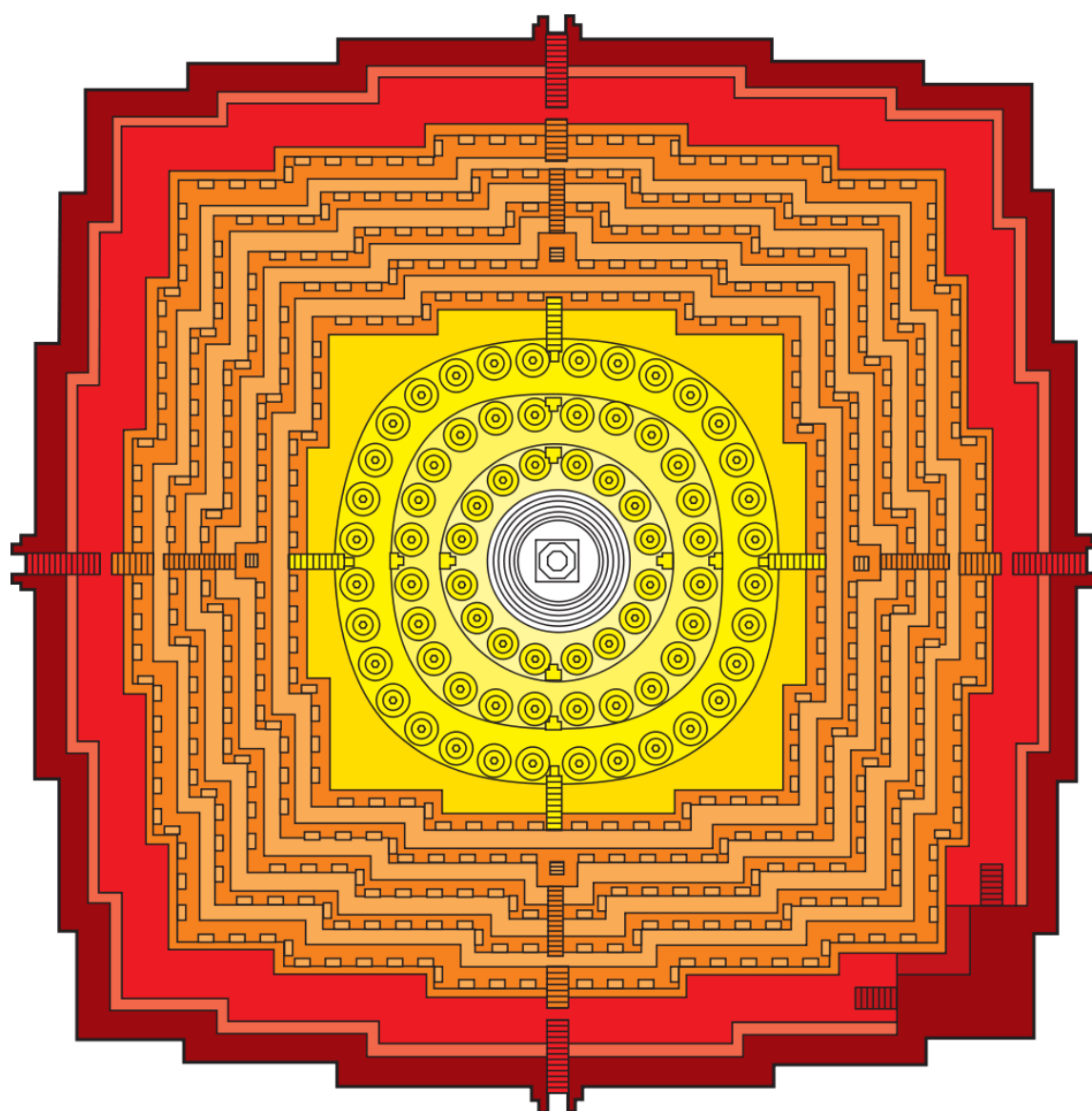
Scholars consistently divide the monument into three architectural zones: the hidden base, the five decorated levels in the middle, and the three stark levels of stupas. This tripartite division has been interpreted in a variety of ways (Fig. 32). In one interpretation, Borobudur represents the three spheres of the universe: the *bhurloka* or the Sphere of the Mortals, the *bhuvarloka* or the Sphere of the Purified, and the *svarloka*

¹⁶⁵ Gifford 2011, 3.

¹⁶⁶ Gifford 2011, 4.

¹⁶⁷ Fontein (2012), Gomez and Woodward (1981) and Kandahjaya (2004, 19-26) provide a thorough overview of these arguments, far beyond the scope of this thesis.

¹⁶⁸ de Casparis 1981, 68.



Kāmadhātu
 Rūpadhātu
 Arūpadhātu

Fig. 32: The three divisions of Borobudur (from Kartapranata 2009).

or the Sphere of the Gods.¹⁶⁹ These spheres are, however, primarily Hindu concepts. The prevailing argument is that the three divisions correspond to the three realms of Buddhist spiritual progression. In this scenario, the hidden base would represent *kamadhatu*, or the Sphere of the Desires.¹⁷⁰ This is the realm occupied by ordinary beings, trapped by desire in the endless cycle of death and rebirth known as *saṃsāra*. The middle levels represent *rupadhatu*, the Sphere of Forms. In this stage, an individual has abandoned the cycle of desire, but is still bound by their earthly body and identity. The drama and passion of this state are captured in stories of the Buddha and Bodhisattvas, and their work here on earth. The final levels represent *arupadhatu* or the Sphere of Formlessness. In this state, an individual has abandoned desire and is no longer trapped by their form. This is emphasized by the barren architecture, its only embellishments the stupas with half-hidden Buddhas.¹⁷¹ One theory suggests that the large, final stupa crowning Borobudur was intentionally left empty, representing extinction of the self and final triumph over *saṃsāra*.

Borobudur's imposing structure most clearly evokes a mountain. The monument may have been designed to represent the mythical Mount Sumeru, which, in Buddhist cosmology, stands at the center of the both the physical and spiritual universe. The niches in the balustrade walls, each occupied by a Buddha statue, may have been intended to bring to mind mountain caves with meditating ascetics. In ancient Java, mountains were sacred spaces associated with ancestral spirits. The monument's unique

¹⁶⁹ Soekmono 1976, 17.

¹⁷⁰ Miksic 2010, 37.

¹⁷¹ Soekmono 1976, 17–9.

stepped shape might have developed out of ancient Javanese earthen mounds and terraced structures. Borobudur may represent the integration of these megalithic forms with Mahāyāna Buddhist symbolism.¹⁷²

Ratabuka Plateau inscription (792 C.E.) provides further evidence that Borobudur monument was conceived as a mountain. Casparis argues that the inscription indicates that the Śailendras paid homage to the cosmic mountain of the perfect Buddhas (Borobudur), and not the Lord Buddha, the *Triratna* (the Three Jewels),¹⁷³ or *Avalokiteśvara* (a bodhisattva embodying compassion), as were traditional.¹⁷⁴ He translates the inscription as:

*“I pay homage to the Sumeru of the Buddhas, of lofty qualities and endowed with the awe-inspiring power of wisdom - whose profound caves are knowledge, whose rock is excellent tradition, whose brilliance is owing to its relic: the Good Word, whose streams are love, whose forest are concentration - truly the Mount of Few Desires, which is not shaken by the right horrible winds. . . “*¹⁷⁵

This inscription seems to poetically refer to Borobudur’s niches with Buddha statues (whose caves are knowledge), reliefs (whose rock is excellent tradition), the

¹⁷² Miksic 2010, 37.

¹⁷³ The Three Jewels are the three sources of refuge and guidance for Buddhist. They are the Buddha, the Dharma (teachings) and the Sangha (Buddhist community).

¹⁷⁴ de Casparis 1981, 74.

¹⁷⁵ de Casparis 1981, 74.

pinnacles of its balustrades (forest) and summit (Mount of Few Desires – representing the *arupadhatu*).¹⁷⁶

Borobudur is closer in design to being a stupa (a domed Buddhist shrine, Fig. 33) than being a temple, or *chandi*. Buddhist and Hindu temples required a sanctuary, a sacred inner space meant to house a god and provide a place of worship. Without it, Borobudur could not function fully in a ritual capacity.¹⁷⁷ Krom and Sutterheim compiled a strong series of arguments that Borobudur was intended as a unified, giant stupa.¹⁷⁸ The first stupas were mortuary monuments enshrining the ashes of Gautama Buddha. Stupas are focal points of worship, and often house Buddhist relics. Traditional stupa decorations include scenes from the Buddha's various incarnations, which we see on the surface of Borobudur.¹⁷⁹ The sections of the monument represent the three traditional architectural components of a stupa: the base, dome and pinnacle.¹⁸⁰ Borobudur's narratives are arranged so that pilgrims would circle the monument clockwise. Similarly, traditional worship at a stupa, the *pradaksina*, involves solemn clockwise circumambulations.¹⁸¹

¹⁷⁶ de Casparis 1981, 74.

¹⁷⁷ Soekmono 1976, 15–7.

¹⁷⁸ Gómez and Woodward 1981, 1–14.

¹⁷⁹ In addition these texts, Borobudur's architects added the law of Karma, the *Mahakarmavibhanga* and Sudhana's quest for wisdom, the *Gandavyoha*.

¹⁸⁰ Soekmono (1976, 16) holds that Borobudur was not a stupa. His argument against the stupa form, however, is based on an interpretation that all ten levels of the monument would represent the stupa's base, with the dome at the top being the actual monument.

¹⁸¹ Fontein 2010, 111.



Fig. 33: The great stupa of Sanchi, the oldest known continually used stone structure in India (from Maurya 2012).

Viewed from above, Borobudur's plan resembles a nested series of concentric squares and circles. It mirrors the layout of a mandala, a sacred diagram that represents the structure of the universe with Mt. Sumeru at its center. At its most basic level, a mandala is a circle with a central point, and four T shaped gates (Fig. 34). Mandalas can be incredibly complex, and steeped in sacred numerology. They are used in numerous meditation rituals. Borobudur may have functioned as an enormous, three-dimensional mandala. Although numerous scholars have tried to link Borobudur to a specific Mandala construct, none has yet succeeded.¹⁸² Just as the central point of a mandala represents the central axis of the cosmos, the Sailendras may have envisioned Borobudur as the spiritual axis of their mandala kingdom. Borobudur symbolized the new Śailendra world order.¹⁸³

It is clear that Borobudur functioned as a place of pilgrimage and instruction. It was not simply a sacred destination, but an extension of the pilgrimage itself. Upon reaching the monument, visitors could walk around it, gazing at the mythical creatures depicted on its imposing walls. Those who were permitted to enter continued their pilgrimage as they circled the mountain level by level, slowly winding their way to the summit. Archaeological evidence indicates that it drew Buddhists from throughout Java and Southeast Asia. Thousands of votive stupas and clay tablets were left at the monument by internationally diverse groups of monks and devotees.¹⁸⁴

¹⁸² Miksic 2010, 37.

¹⁸³ Hall 1985, 132.

¹⁸⁴ Ray 2005, 318.



Fig. 34. A photograph of monks from Drepung Loseling Monastery (Atlanta, Ga.) creating a Mandala sand painting at Minnesota State University in 2012 (photograph from Minnesota State University, Mankato Media Relations Office 2012 (September 10)).

Perhaps the best evidence for Borobudur's importance as a center for pilgrimage is the reliefs themselves. The majority are dedicated to a single saga, the *Gandavyuha*, which tells the story of Sudhana's great pilgrimage and his search for wisdom. These pilgrimage reliefs cover the main wall of the second gallery (II), the entire third gallery (III and III.B) and fourth gallery balustrade (IV.B), suggesting that spiritual pilgrimage was the ultimate and intended purpose of Borobudur. F. D. K. Bosch argued that Sudhana reflected the Indonesian ideal of a pilgrim, serving a model to those travelers that visited the monument.¹⁸⁵ Casparis hypothesized that Śailendran princes would undergo public pilgrimages to Borobudur to model proper Buddhist devotion for their subjects, and to remind the realm of the piety and wisdom of their ancestors.¹⁸⁶

Abandonment, Discovery and Restoration

It is not known when Borobudur fell into disuse. In 1006 C.E. Mt. Merapi underwent a cataclysmic eruption which decimated the heart of Mataram. Ash and lahar (rapid mudslides containing water, ash, and rock) buried numerous temples, such as Kedulan, Morangan, Pustakasala and Sambisari. The mysterious event was known as the "death of Mataram" and was recorded in the *Maha Pralaya Kerajaan Mataram* manuscript.¹⁸⁷ Religious life in the Kedu Plain did not end with the *Pralaya* or the subsequent shift of Mataram's royal court to East Java. Many regional Buddhist and Hindu monuments thrived until the Islamization of Java in the 15th century C.E., and

¹⁸⁵ Bosch 1952.

¹⁸⁶ de Casparis 1981, 72.

¹⁸⁷ Whitten et al. 1996, 97.

archaeological evidence indicates Borobudur may have been among them.¹⁸⁸ Chinese coins discovered at Borobudur have an extended sequence of dates continuing from the 11th to 15th centuries C.E. A Javanese poem from the 14th century C.E. also describes pilgrims visiting the monument.¹⁸⁹

At some point, the land reclaimed the monument, and Borobudur was swallowed by volcanic ash and jungle (Fig. 35). It remained in local memory but became a place of mysterious forces. Legends associated Borobudur with ill luck and misery; stories of woe followed those that ventured there.¹⁹⁰ Locals avoided the place. Thus superstition protected the monument from human modification until the early 19th century.

The British captured Java from the Dutch in 1811. The English Lieutenant Governor-General, Sir Thomas Stamford Raffles, was alerted to the existence of the mysterious mountainous structure in 1814. Raffles, an antiquarian, was immediately intrigued. He ordered Dutch engineer H. C. Cornelius to begin a program of investigation, and they endeavored to excavate the entire structure. Cornelius organized a work gang of some 200 villagers to clear the earth and trees from the ancient walls, slowly revealing the ancient artwork. The galleries were unstable, however, and could not be completely uncovered.¹⁹¹

¹⁸⁸ Soekmono 1976, 4.

¹⁸⁹ Ray 2008, 440.

¹⁹⁰ Soekmono 1976, 4.

¹⁹¹ Soekmono 1976, 5.



Fig. 35. A watercolor by J. G. Newman depicting the overgrown and crumbling state of Borobudur before vegetation was cleaned from the monument in 1814 (49.5 x 66 cm watercolor from the Kartini Muljadi Collection, Jakarta, Indonesia, from Damais 2010, 230).

The daily labor helped dispel local superstitions surrounding Borobudur. The local populace soon started quarrying the exposed monument for stone, treating it as an inexhaustible source of building material.¹⁹² A slow four-way race began between individuals interested in documenting and preserving the monument, rapid weathering, souvenir hunters, and locals in need of building material.

The Dutch took intermittent interest in Borobudur once they regained control of the region in 1814, following the Napoleonic Wars. It fell to one of the Dutch regional managers, Hartman, to complete Cornelius' excavations in 1835. Unfortunately, no reports of his activities exist. Between 1849 and 1873, a number of artists, engineers, and scholars documented and published the monument.¹⁹³ In 1885 J. W. IJzerman, Chairman of the Archaeological Society in Yogyakarta, discovered Borobudur's hidden foot. The encased reliefs were uncovered, photographed, and reburied between 1890 and 1891. It was a sensational find and captured the public imagination, refocusing Dutch attention on the monument.¹⁹⁴

In 1900, the Dutch administration appointed a commission to determine how to protect the monument; it included art historian J. L. A. Brandes, army engineer Theodore Van Erp, and a construction engineer from Public Works, Van de Kamer. The government ultimately entrusted the restoration of Borobudur to Van Erp, and work began in 1907. The initial plan was to stabilize the monument, add drainage and make urgent repairs. Van Erp realized more could be done, so stone by stone, the monument

¹⁹² Soekmono 1976, 5.

¹⁹³ Soekmono 1976, 6.

¹⁹⁴ Soekmono 1976, 43.

was disassembled and rebuilt. He attempted to preserve as much original structure as safety would allow, and conscientiously avoided fabrication and conjecture.¹⁹⁵ Critically, every single panel was photographed. Those images capture the carvings before weathering reduced the detail of the reliefs, and they constitute the primary data source for this study.

Despite Van Erp's efforts, the monument began to crumble; exposure took its toll. Fluctuation in temperature and humidity caused the reliefs to crack, disproportionately damaging the carvings' most delicate features. Moss ate away at the stones. The walls began to bulge, shift and slump, and Borobudur deteriorated at a rapid rate.¹⁹⁶ World War II prevented action, but following the Republic of Indonesia's recognition in 1950, the new government focused its attention and financial resources on the monument. UNESCO became involved in 1955, but the project was at the mercy of intermittent funds and an unstable status. Researchers concluded that Borobudur had to be rebuilt, in its entirety - hopefully, it would be for the last time. Finally, in 1973 both funds and a master plan were in place. Between 1975 and 1982, a team of 600 workers cleaned all the panels on the monument, dismantled and rebuilt the square terraces, and added crucial new stabilization and drainage features (Fig. 36).¹⁹⁷ Borobudur is now a UNESCO world heritage site and receives millions of visitors every year.

¹⁹⁵ Soekmono 1976, 43–4.

¹⁹⁶ Soekmono 1976, 45–6.

¹⁹⁷ Soekmono 1976, 45–51.



Fig. 36: Photograph of Borobudur during the 1973-1983 reconstruction process (from Setiadi 2010, 204).

CHAPTER IV

THE BOROBUDUR VESSELS

Overview

While overseeing the reconstruction of Borobudur (1907 to 1914), Dutch engineer Theodore Van Erp became intrigued with the eleven ship reliefs carved on the walls of the monument, publishing an extensive analysis of the boats in Dutch in 1923. Van Erp was not the first individual to be interested in the ships. A few of the vessels had been discussed by various turn-of-the-century scholars, including Mookerji (1912) and Hornell (1920). However, Van Erp's publication, *Voorstellingen van vaartuigen op de reliefs van den Boroboedoer* (Representations of Vessels in the Reliefs of Borobudur), was unique because it 1) examined each vessel individually, and 2) described the Buddhist narratives associated with the reliefs. Van Erp's paper remains the foundation for the study of the vessels. He analyzed the structure of the rowing galleries, compared variations in the construction of the outriggers, provided a cross section reconstruction, and looked at the variations in the mast heads, pennants, and ornamentation. Van Erp's excellent photographs of each of the vessels enabled other scholars to investigate ships that were otherwise difficult to access.

Cultural Association

Early debates focused on the origins and cultural association of the outrigger watercraft depicted in the reliefs. These debates were fuelled by the wider discussion of "Indianization" in Southeast Asia, the mechanism by which proto-states and kingdoms in the region adopted numerous aspects of Indian society, including religion, writing

systems, culture norms, social structures, and political theory.¹⁹⁸ Maritime routes were the vectors for cultural diffusion, whether by conquest, convergence, or localization,¹⁹⁹ which made the Borobudur Vessels an important component of the debate.

In his 1912 work, *Indian Shipping*, R. Mookerji suggested that Borobudur's reliefs showed South Asian vessels used to bring Indian colonists, religion, and culture to Java.²⁰⁰ Van Erp was impressed with the grandeur and complexity of the outrigger vessels depicted at Borobudur. He believed that Borobudur's sculptors chose to decorate the monument with elaborate Indian vessels instead of inferior Javanese watercraft.²⁰¹ Scholars such as N. N. Rao and S. K. Bhowmik have expounded an Indian origin in recent decades.²⁰² N. N. Rao argued that, "the development of Indian shipping industry and its usage as a means for spreading Indian culture and art is depicted in a masterly way in a group of five panels at Borobudur."²⁰³ The Borobudur reliefs have Indian stylistic elements which scholars have used to argue a South Asian origin for the outrigger vessels. S.K. Bhowmik pointed out that the dress and adornment of figures associated with the vessels is very similar to Gujarati forms of dress depicted elsewhere.²⁰⁴ Van Erp suggested that other forms of transport depicted in the reliefs (such as carriages, carts, palanquins and elephants) had a distinct Indian character, thus

¹⁹⁸ "Indianization" theories were influenced by colonialist and nationalist thinking in the early part of the 20th century.

¹⁹⁹ Bellina and Glover 2004, 68.

²⁰⁰ Mookerji 1957, 31–4.

²⁰¹ Van Erp 1923, 10.

²⁰² Rao 1991, 185–188; Bhowmik 1987, 98

²⁰³ Rao 1988, 94.

²⁰⁴ Bhowmik 1987, 98.

the Borobudur vessels were also probably of Indian design.²⁰⁵ Manguin refutes the argument on the same basis. The tools and houses depicted on Borobudur, (along with forms of transport), have continuity with local Javanese forms. He argues that the Borobudur Vessels represent localized traditions in the archipelago.²⁰⁶

The weight of available evidence suggests that Borobudur's outrigger vessels represent Indonesian boats. James Hornell's ethnographic research on early twentieth century indigenous watercraft led him to argue that the outrigger craft on Borobudur's walls "were local Javanese vessels, with lineal descendants of similar size and still surviving in the coasting trade of East Java."²⁰⁷ Some Indonesian *prahu* (boats) retained features found in the reliefs, such as bipod and tripod masts, outriggers and quarter rudders, into the twentieth century (Fig. 5). They have been extensively documented by Horridge and Hawkins, as well as other maritime ethnographers.²⁰⁸ Bipod/tripod masts with canted rectangular sails appear on a variety of Indonesian *prahu*, specifically the *Palari* and *Patorani* types of southern Sulawesi, and the whaling vessels of Lamalera.²⁰⁹ The closest known relative of Borobudur's outrigger vessel were *kora kora*, slender Indonesian galleys with outriggers and bipod masts. They carried up to 100 warriors, as well as 100 paddlers on a side. They were used as pirate vessels, coastal raiders, and royal barges during the 16th and 18th centuries.²¹⁰

²⁰⁵ Van Erp 1923, 10.

²⁰⁶ Manguin 2010, 180.

²⁰⁷ Hornell 1946, 216.

²⁰⁸ See Hawkins 1982 and Horridge 1985.

²⁰⁹ Barnes 1996.

²¹⁰ Horridge 1978, 9–16.

Iconography

The lack of comparative iconography has limited the study of the Borobudur Vessels. There are no known iconographic examples of similar outrigger vessels from Indonesia, mainland Southeast Asia, or South Asia. In general, ship depictions are surprisingly scarce in regional art. A detailed survey of South and Southeast Asian ship iconography is beyond the scope of this thesis, and has already been undertaken by Schlingloff, Ray, Deloche, and Herron.²¹¹ Very schematic vessels are depicted on coins and seals from both India and Bengal. They lack detail and do not bear directly on the reliefs. Paddled war canoes are depicted on Indonesian and Vietnamese kettle drums from the third millennium B.C.E.²¹² These vessels have been compared to a poorly dated bronze boat model from Flores which was created sometime in the first millennium C.E.²¹³ A number of representations are visible in Indian iconography from around the beginning of the first millennium C.E. A variety of rudimentary, crescent shaped ships are depicted on the Buddhist monuments of Bharhut (second century B.C.E., Fig. 37) and Sanchi (first century B.C.E.), as well as a small collection of other Buddhist sites that date between the first century B.C.E. and the sixth century C.E.²¹⁴

Perhaps the most important depictions of South Asian watercraft from the first millennium are the sixth century C.E. paintings from the Ajanta caves in India. Cave XVII depicts a number of vessels. In one illustration, we see the merchant Simhala

²¹¹ Schlingloff 1998; Ray 1994; Deloche 1996; Herron 1998.

²¹² Kempers 1988.

²¹³ Adams 1977.

²¹⁴ Deloche 1996, 200–4.



Fig. 37. This rondel from the Stupa of Bharhut, dates to the second century B.C.E. It depicts two ships, one of which is being devoured by a sea monster (from Huntington and Huntington 1969).

stranded upon the coast of Sri Lanka near a city of demons (Fig. 38, B). In another panel, we see Siṃhala as King, returning to Sri Lanka with an invasion force and three vessels transporting elephants and cavalry (Fig. 38, A).²¹⁵ Cave I depicts prince Kalyāṇakārin and his evil brother voyaging in a crescent shaped vessel (Fig. 38, C).²¹⁶ Most famously, Cave II depicts a merchant ship from the *Pūrṇa-avadāna*. It has three tall sails, a foresail, a bowsprit, and quarter-rudders (Fig. 38, D).²¹⁷ The Ajanta ships provide the best information we have about South Asian nautical technology in the second half of the first millennium C.E., however, they bear no resemblance to the Borobudur vessels.

There is a significant gap in nautical iconography between the 7th and 11th centuries C.E.²¹⁸ More information is available about second millennium nautical technology. A variety of 11th to 15th century C.E. hero stone memorials from western India depict South Asian and Indian Ocean craft.²¹⁹ The 12th century C.E. Bayon Temple in Cambodia has finely-detailed reliefs depict riverine pleasure craft, rowed war vessels full of soldiers, and even a foreign ship.²²⁰ None of the vessels depicted in the assemblage of South and Southeast Asia iconography have bipod masts, outriggers or rowing galleries. The Borobudur vessels are completely unique.

²¹⁵ Schlingloff 1988, 201.

²¹⁶ Schlingloff 1988, 203.

²¹⁷ Manguin 1980, 274; Schlingloff 1988, 204.

²¹⁸ Deloche 1996, 207.

²¹⁹ Deloche 1996, 207-9; Tripathi 2006, 91–6.

²²⁰ Needham et al. 1978.

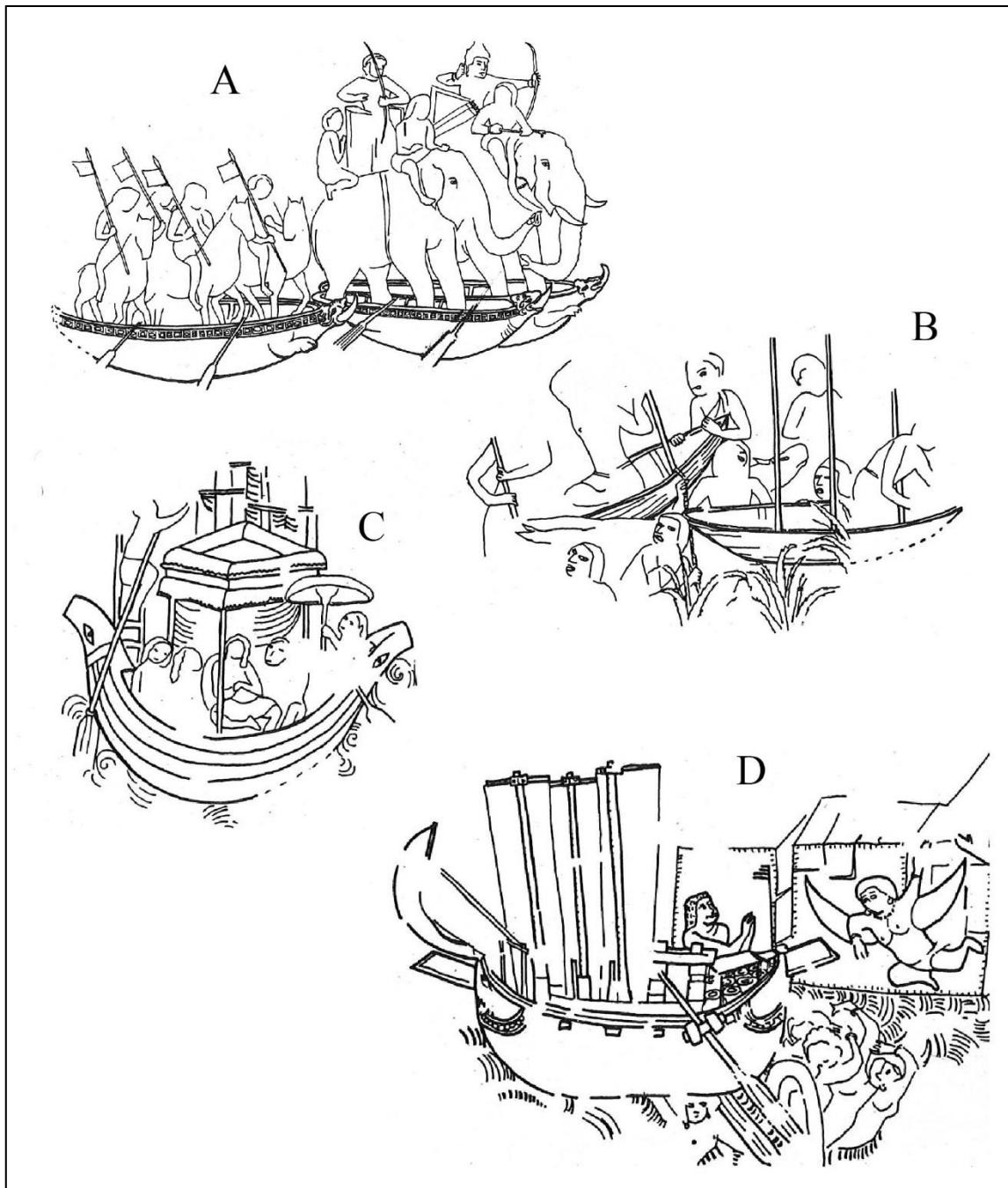


Fig. 38. Numerous ships are depicted in the Ajanta Caves (ca. 6th century C.E), including elephant and cavalry transports (A), a shipwreck off of Sri Lanka (B), a prince's ship (C), and a three masted merchant ship (D), (adapted from Schlingloff 1988, 390-1, figs. 6, 7, 8, and 10).

Reconstructions

The Borobudur ships have inspired a series of reconstructions. These attempts have employed evidence from iconography, ethnography, and archaeological excavations, as well as indigenous seafaring traditions. Erik Peterson believed that the vessels depicted on Borobudur were highly precise representations of real ships, suggesting that the relative size of all the vessel's components were accurately represented, while the figures were exaggerated.²²¹ Peterson decided to treat the panels as blue-prints, focusing on I.b.86 (Fig. 39 and Fig. 40). He built a model to test his hypothesis. It demonstrated that his initial rendition was not sea-worthy, capsizing in calm weather despite the outriggers. He had to widen the beam, lower the center of gravity, extend the outriggers, and introduce ballast. The model is now on display at the Jakarta Maritime Museum (Museum Bahari).²²²

Several full-scale sailing reconstructions have also been attempted. In the 1980s, Robert Hobman organized a team of indigenous shipbuilders and nautical experts who built a full-scale sailing replica of an outrigger vessel like those seen on Borobudur (Fig. 41). It was built using edge-dowelled, lashed-lug planking, based on the hull structure of the Pontian boat. The team fitted it with double outriggers and bipod masts. Christened the *Sarimanok* (meaning "lucky little bird"), it sailed first to Java and then on to Madagascar in 1985.²²³

²²¹ Peterson 2006, 52.

²²² Peterson 2006, 54–5.

²²³ Dennison 1985.

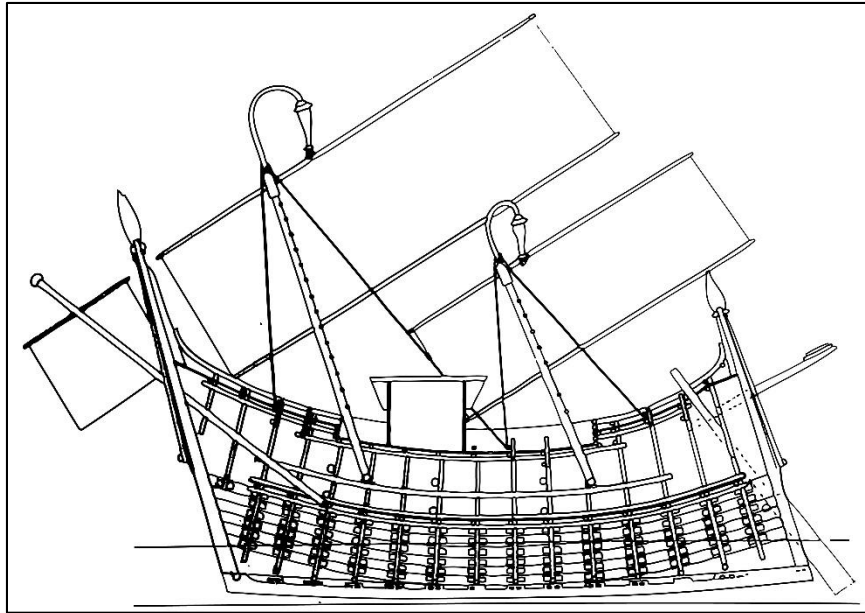


Fig. 39. Peterson's reconstruction of I.b.86 (from Peterson 2006, 54, fig. 8.8).

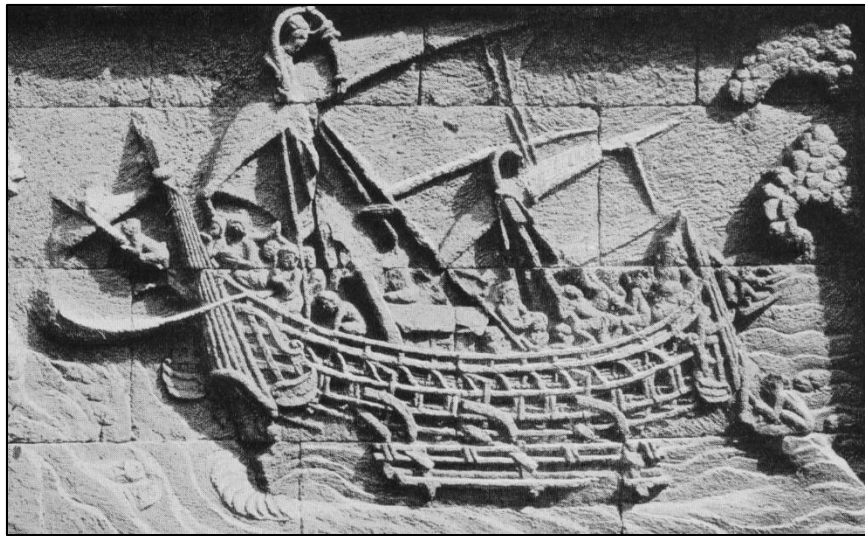


Fig. 40. Van Erp's Photograph of I.b.86 (after Van Erp 1923, 18, afb. 6).

The Borobudur Ship Expedition made a second attempt at reconstruction. Inspired by the reliefs, Philip Beale decided to commission a full-size replica (Fig. 42). The vessel was built by a team of Indonesian shipwrights in Madura under the leadership of As'ad Abdullah and supervised by Nick Burningham. The ship was launched in 2003, and sailed from Jakarta to Ghana, retracing the cinnamon route.²²⁴ Burningham and his team paid a great deal of attention to the design and stability of the vessel. It was constructed shell first with edge-dowelled planks, and represents the best documented reconstruction to date.²²⁵

A third sailing reconstruction, named *Spirit of Majapahit*, was based partly on the Borobudur Vessels. Intended to represent a 14th century Javanese vessel of the Majapahit thalassocracy, it was built by craftsmen from Madura and equipped with double outriggers and a tripod mast. It was launched from Jakarta in 2010 on a goodwill voyage to Brunei, the Philippines, Japan, China, Vietnam, Thailand, and Singapore.²²⁶ By the time it reached the Philippines, the crew mutinied, cutting short the voyage.²²⁷ Unfortunately, few of the details from these expeditions have been published.

²²⁴ Beale 2005; Burningham 2005.

²²⁵ Burningham 2005, 10-13.

²²⁶ Antara 2010 (July 5)

²²⁷ Riady 2010 (August 15)



Fig. 41: *Sarimanok*, built and sailed by Rob Hobman's team (video still from Dennison 1985)



Fig. 42: The replica built by the Borobudur Ship Expedition sailed from Jakarta to Ghana (photograph from Beale 2005).

Description of the Vessels

The design and construction features of Borobudur's eleven vessels are summarized below. As this thesis is focused on the mariners aboard the watercraft and the associated Buddhist narratives, a thorough analysis of the construction, design, rigging of the vessels is beyond its scope. This summary is divided between the Indonesian vessels (which include the frequently discussed outrigger craft, as well as the small boats associated with them) and the variety of other vessels depicted in the reliefs.

Indonesian Vessels

Five outrigger vessels (I.b.53, I.b.86, I.b.88, I.b.108 (right), and II.41) are depicted within Borobudur's reliefs. Each is briefly described below, followed by a description of their common features. All five have canted rectangular sails, bipod/tripod masts, outriggers, rowing galleries, deckhouses, and quarter rudders, as well as distinctive bow and stern decorations. Two small boats are also associated with the outrigger vessels. Vessel I.b.108 (left) has a single bipod mast and is in the same panel as one of the large outriggers. It likely represents a tender or ship's boat associated with I.b.108 (right). Vessel I.b.82 is a schematic view of a boat. It is potentially a ship's boat as well. It is in the same narrative sequence as I.b.86 and I.b.88, and thus, likely related.



Fig. 43. Vessel I.b.53 is an Indonesian type outrigger vessel with rowing galleries and two bipod masts (photograph from Anandajoti 2009c).

The Outrigger Vessels

Vessel I.b.53 is an outrigger vessel sailing toward shore (Fig. 43). It is the only vessel where strake lines are visible on the hull. Vessel I.b.53 has two bipod masts with rungs, partly unfurled canted rectangular sails, a bowsprit, rowing galleries, outriggers, raised bosses/oculi, and a visible rudder.



Fig. 44. Vessel I.b.86 is an Indonesian type outrigger vessel with rowing galleries and two bipod masts (photograph after Anandajoti 2009d).

Vessel I.b.86 is one of the great masterpieces of Javanese art (Fig. 44). It has inspired three sailing reconstructions and appears on the covers of books and conference proceedings.²²⁸ It is shown under full sail and heeling to starboard. It has two bipod masts with canted rectangular sails, a bowsprit with a headsail, a deck house, rowing galleries, outriggers, a stern extension, raised bosses/oculi, and a visible rudder that runs through the rowing gallery.²²⁹

²²⁸ Including Hall (1985).

²²⁹ Also noted by Peterson (2006, 54).



Fig. 45. Vessel I.b.88 is an outrigger vessel with rowing galleries, oars, and two bipod masts. Likely a copy of I.b.86 (photograph after Anandajoti 2009d).

Vessel I.b.88 is very similar to I.b.86, though not of the same quality (Fig. 45). Van Erp observed that I.b.86 is the work of an artist, while I.b.88 is the work of an artisan.²³⁰ However, I.b.88 provides important information about hull shape and rowing configuration not visible in I.b.86. The vessel has two bipod masts with canted rectangular sails, a bowsprit with a headsail, a deck house, rowing galleries, six oars, outriggers, a stern extension, and a visible rudder.

²³⁰ Van Erp 1923, 19.



Fig. 46. Vessel I.b.108 (right) is an outrigger vessel with rowing galleries, oars, and two bipod masts. It is the larger of two vessels caught in a storm (photograph after Anandajoti 2009b).

The larger vessel in panel I.b.108 (right) is a merchant ship caught in a violent storm (Fig. 46). Although overshadowed by I.b.86, I.b.108 (right) provides more information about ancient sailing vessels. It has the most complex depiction of masts and rigging in the reliefs. It shows how oars were positioned in relation to the rowing gallery and rowers, as well as how the rudder was configured. Vessel I.b.108 has two bipod masts with wooden rungs, canted rectangular sails, a bowsprit with a headsail, a deck house, rowing galleries with visible oarsmen, eight to nine oars, outriggers, raised bosses/oculi, and a visible rudder.



Fig. 47. Vessel II.41 is an outrigger vessel with rowing galleries, oars, and a single bipod mast (from Van Erp 1923, 28, afb. 10).

Vessel II.41 is the only outrigger vessel with a single bipod mast, and the only vessel on the second gallery (Fig. 47). The artistic style is somewhat different, and the carving is more distinct. Vessel II.41 has a single bipod mast with thick wooden rungs, a furled canted rectangular sail, a deck house, rowing galleries with visible oarsmen, at least eight oars, outriggers, raised bosses/oculi, and a damaged/obscured rudder.



Fig. 48. Vessel I.b.82 is a schematic view of a beached ship's boat. The vessel is distinctly disproportionate to the figures (photograph after Anandajoti 2009d).

The Small Boats

Vessel I.b.82 likely represents a small, beached vessel being laden with sacks of jewels (Fig. 48).²³¹ It is disproportionally small in comparison to the figures surrounding it (even for a canoe). Vessel I.b.82 is a simplified, schematic view of a boat, and likely represents the same type of ship's boat as the smaller vessel in I.b.108 (left).

²³¹ The size provides no indication of what kind of vessel it is. As Krom (1927, 296) rightly points out, "sculptor has merely put in a boat to be loaded with treasure and neglected all the other circumstances."



Fig. 49. Vessel I.b.108 (left) is a small ships boat with a single bipod mast. It is the smaller of two vessels caught in a storm (photograph after Anandajoti 2009b).

The smaller vessel in panel I.b.108 (vessel) is a likely a ship's boat (Fig. 49) belonging to the larger vessel, I.b.108 (right). Both are caught in a violent storm. It has a bipod mast with a canted rectangular sail and raised bosses/oculi. The shape of the stem, sternpost, and hull are similar to the larger vessel, but it lacks outriggers. It should be included amongst the Indonesian type vessels because it represents the same building tradition (discussed below).

Indonesian Traits

The vessels depicted on I.b.86, I.b.88, I.b.108 (right), I.b.53 and II.41 belong to a single type. All five vessels share six traits: a similar hull shape, bipod masts, canted boom-footed rectangular sails, a stem and sternpost sheathed with poles, rowing galleries, and outriggers. These details are characteristically Indonesian.²³² Seven other distinctive construction traits are found in either three or four of the vessels. These include deck houses, oars, oculi, quarter rudders, bowsprits, headsails, and visible rungs between the legs of the bipod. Four of the five (excepting I.b.53) have deck houses or deck structures. Three of the five (consisting of I.b.88, I.b.108 (right), and II.41) have visible oars. Four out of the five (excepting I.b.88) have oculi or raised bosses, though they are visible on both bow and stern in only two cases, in I.b.53 and I.b.108 (right). In addition to a second oculus, both I.b.53 and I.b.108 (right) show the entire length of the quarter rudder, though in I.b.108 it is shown passing through the rowing gallery. The other three (I.b.86, I.b.88 and II.41) show only the end of the rudder protruding from the rowing gallery. Only I.b.86 and I.b.88 have the mysterious stern platform. The only vessel without a bowsprit is II.41. Three vessels (I.b.86, I.b.88, and I.b.108 [right]) have an unfurled headsail mounted on the bowsprit. Four out of five (excluding I.b.86) have rungs visible between the mast spars.

²³² Needham et al. 1978, 458.

Hull shape

The Indonesian class of vessels has a sweeping sheer with tall stem and lower sternpost. The forward rake of their stems ranges from approximately 5 to 25°. The stem seems to be surrounded by an arc of poles or narrow planks. Peterson suggests that the structure is made of tapered poles lashed to the post.²³³ Their butts seem to rest on an arched wooden buttress that was tied into the rowing galleries. Burningham suggests that these structures might have been served as defensive screens, while others argues they were designed to prevent water washing over the deck.²³⁴ It is difficult of determine the shape of the hull. A faint line is visible in the water below the outrigger of I.b.86. Peterson observed that this line likely represents the bottom of the vessel, as seen beneath the undulating waves. He used this line in his reconstruction of I.b.86, which produced a vessel with straight stem and sternpost, as well as a slightly rockered keel.²³⁵ If we examine panel I.b.88, however, a completely different hull shape is visible. The sternpost is curved, and the vessel has a deeper, rounder hull.

Erik Peterson attempted to use I.b.86 as a set of blueprints. He hypothesized that the artist “started by making a precise picture of the ship as seen from the side.”²³⁶ To accommodate for some of the obviously skewed elements, Peterson suggested that the artist changed perspective to illustrate the rowing galleries and outriggers “as seen from above and from in front.” The resulting reconstruction was beautiful, but the underlying

²³³ Peterson 2006, 54.

²³⁴ Burningham 2005, 11.

²³⁵ Peterson 2006, 52.

²³⁶ Peterson 2006, 42.

assumptions are flawed. The carvings are not schematic side profiles with elements added in contrary views. We can see from the detail in these ships that the artists were interested in perspective. The artist who created I.b.86 was a master stone-carver.²³⁷ He chose to depict I.b.86 heeled over, sailing toward the viewer on an angle - an incredibly difficult illusion to attempt in bas-relief. To show this perspective, the artist exaggerated the stagger of the bipod mast legs and depicted the forward face of the outrigger booms, none of which would be visible in schematic view. To reinforce this perspective, the artist tapered the ship from stem to stern. The point where the bow enters the water (marked by a curled wave) is close to the lower part of the frame while the break of the stern is positioned much higher. When combined with the tapered form, this slanted waterline gives the impression of an oblique view. The artist tried to simulate this viewpoint in panel I.b.53 as well, but used a different technique. The strake lines sweep up to the stem, and down the other side giving us a head on view of where they meet at the bow (and make an inverse “v”).

The fact that vessel I.b.86 is not sitting upright in the water has also been ignored in the reconstruction. The artist went to great efforts to show the ship under full sail. The canvas billows in the wind. The rigging is taut. The extreme forward angle of the masts, stem and sternpost likely indicate that the vessel is heeled over on its starboard side, responding to the force of the wind. If we look at other vessels of this type, the forward rake of the stem and sternpost is not nearly as prominent, and the sternpost is actually raked slightly aft in I.b.108. From these observations, we may conclude that the artist

²³⁷ Van Erp 1923, 19.

who created I.b.86 was not attempting to show a schematic side profile of a ship, but instead was working to create a dramatic, three-dimensional, oblique view.

The hulls of the vessels are largely obscured by the rowing galleries. The only place where strake lines are visible are on the bow and stern of I.b.53, and perhaps the bow of II.41, but it is too indistinct to tell. Early Indonesian vessels most likely had laced planking and frames lashed to raised lugs.²³⁸ A change occurred sometime around the 7th century C.E., as vessels began exhibiting planking joined with treenails, but maintained cleat blocks/lugs for lashing/fastening the frames. Treenail/wooden pegs were characteristic of all the ship remains excavated in archipelago South East Asia.²³⁹ This style of construction is mentioned by numerous European travelers in Indonesia, including Antonio Galvao in the Moluccas in 1544,²⁴⁰ Nicolau Perreira who visited Java in 1582²⁴¹ and in the superb Alciso Alcina MS from 1668.²⁴² Jahan suggests that certain lines visible on the hull indicate sewn-planking,²⁴³ but careful examination shows that there is no indication of the fastening method. Manguin rightly argues that the details are too obscure to provide any indication of whether the ship was sewn, lashed, dowelled or nailed.²⁴⁴

²³⁸ Hull construction of Indonesian vessels, which beyond the scope of this thesis, is extensively described by Horridge (1978, 1982) and Manguin (1980, 1993).

²³⁹ McGrail 2001, 305–6.

²⁴⁰ Described by Horridge (1978).

²⁴¹ Noted by Manguin (1980).

²⁴² This probably contains the most complete description of lashed-lug boat building from before the 18th or even 19th century. It is thoroughly described by Horridge (1982).

²⁴³ Jahan 2006, 80–1; Jahan may be confusing other structural elements with planking seams.

²⁴⁴ Manguin 1993, 263

Oculi/Bosses

Vessels I.b.53, I.b.86, I.b.108 (both), and II.41 have visible raised bosses on their hull; I.b.88 does not. The boss on I.b.86 is proportionally much smaller than the ones depicted elsewhere. They are raised cylinders with a central ring. The nature of these devices is unclear, though Van Erp and Hornell argue that they are oculi. The eye at the bow of the ship would have been an emblem of vigilance, ensuring safe navigation by gazing out over the water to watch for reefs, rocks, sandbanks and other dangers.²⁴⁵ Hornell argues that the eyes were symbols of a goddess cult, though Van Erp thoroughly rejects this notion.²⁴⁶ Oculi are found on the ships in the Ajanta paintings and are characteristic features of many Asian ships. Junks and sampans along the southern coast of China often have raised wooden bosses nailed to their bows.²⁴⁷ I.b.53 and I.b.108 have these devices at both the bow and stern. Round eyes painted on both the bow and stern quarters were a common feature of vessels from southern Africa, around Madagascar, particularly Zanzibar and the Comoro Islands. This is significant, as Javanese settlers, traders and slavers had strong influence on Madagascar.²⁴⁸ Van Erp argues that the wing-like shapes seen above the eye are emblems of speed. He does not think they can be attributed to the goddess cult, and that the eyes should not be attributed either.²⁴⁹

²⁴⁵ Van Erp 1923, 21.

²⁴⁶ Van Erp 1923, 32.

²⁴⁷ Hornell 1946, 288.

²⁴⁸ Hornell 1946, 288.

²⁴⁹ Van Erp 1923, 32.

These features may be adapted construction elements, such as beam ends. If they served a functional purpose, the ones at the bow may have been akin to a cathead. In I.b.108 (right) and II.41 a line is visible arcing from the boss to the top of the bow buttress. If it indicates a rope, we might have a clue to their function. In vessels I.b.108 (right) and I.b.53, the rudder is resting or pivoting on the boss.²⁵⁰

Bipod Masts

Bipod masts are one of the defining characteristics of the Indonesian type vessels. They are positioned leaning slightly forward, and supported by stays. Most have a curved top, which was common Indonesian practice up to the 19th century.²⁵¹ Panels I.b.88, I.b.108, I.b.53, and II.41 all show bipod masts with rungs, placed to allow easy access to the masthead and sails. This arrangement could be seen during the early 20th century on Macassar *praus* and upcountry Burmese lighters on the Irrawaddy River.²⁵² Van Erp hypothesizes that the rungs were made of rattan as on the Macassar *praus*.²⁵³ Jahan suggests that these represent twined rope ladders.²⁵⁴ However, in I.b.108 and II.41 the rungs project past the mast spars. They are clearly stiff crosspieces of wood or bamboo. In his reconstruction of the I.b.86 vessel, Peterson placed the heels of the spars against long heavy beams. Stays attached to bits allowed the mast to be adjusted fore or aft.²⁵⁵

²⁵⁰ Van Erp 1923, 26.

²⁵¹ Horridge 1978, 7.

²⁵² Hornell 1946, 220.

²⁵³ Van Erp 1923, 22.

²⁵⁴ Jahan 2006, 79–80.

²⁵⁵ Peterson 2006, 54

Bipod masts existed in both ancient Egypt and China;²⁵⁶ while the bipod mast spread widely, their use in the 20th century was confined to the upper Nile, Burma (Myanmar), Indonesia, Southern China, and Lake Titicaca in Peru.²⁵⁷ The bipod mast developed in conjunction with the use of reed boats (as in Egypt and Peru) which could not support a central pole.²⁵⁸ However, the bipod mast retains engineering advantages even in wooden boats. It decreases interference with airflow over the leading edge of the sail, and allows the shipbuilder to substitute two lighter spars for a single large mast.²⁵⁹ To keep the mast upright, ancient Egyptian ships relied on a large number of backstays. There are several other solutions to this problem. One is to use a tabernacle fitting to brace the mast; another option is to use a tripod.²⁶⁰ A model of a Bamawa from Gowa in southwest Sulawesi has main and mizzen tripod masts fitted with tabernacles.²⁶¹

Canted Rectangular Sails

The Indonesian Type vessels carry the characteristically Indonesian canted rectangular sail (or balance sail), which developed sometime around the first century, B.C.E.²⁶² They are long and narrow, a proportion reflected in the sails of New Kingdom Egyptian ships. The tilt of the yard and boom along the foot could be altered to push the

²⁵⁶ The bipod, however, was confined to southern and central China. It did not diffuse until the Han dynasty (Needham et al. 1978, 436).

²⁵⁷ Hornell 1946, 221.

²⁵⁸ Hornell 1946, 49, 225-6.

²⁵⁹ Needham et al. 1978, 435-6.

²⁶⁰ Hornell 1920, 60, 88.

²⁶¹ Model 1009/108. The forward spar is held in place with a hook (Frese 1956, 190-10).

²⁶² It is probable that the canted sail would later develop into the Chinese balance lug around into the 3rd c. C.E. (Needham et al. 1978, 458).

greatest amount of the sail to one side of the mast.²⁶³ Needham observes that in the Borobudur reliefs, the sails bulge considerably, and so could not have been made out of matting, as with Chinese vessels.²⁶⁴ As seen on several of the panels, the Indonesian canted sails often had braces attached to the yard or leech of the sail to adjust its position and set.²⁶⁵ The sails are stretched between a yard and a boom. Wind tunnel experiments demonstrate that this sail configuration is incredibly efficient and powerful, however, Burningham notes that it is very difficult to tack and furl.²⁶⁶ His descriptions of sailing with this type of rig during the Borobudur Ship Expedition is an incredible resource for understating the rigging of these ships.

Vessel II.41 has furled sails. The sailors in panel I.b.53 may be in the process of unfurling the sails of the ship. Jahan suggests that the crew of the larger vessel in I.b.108 are unfurling the sails in the storm,²⁶⁷ though the opposite is also possible. He is incorrect in that the sails in I.b.88 are “furled at top.”²⁶⁸ There are a number of relevant 19th century ship models rigged with canted sails and either bipod or tripod masts in the Kronsborg Maritime Museum in Denmark²⁶⁹ and the Rijksmuseum voor Volkenkunde (National Museum of Ethnology) in Leiden. Though Nooteboom²⁷⁰ and Frese²⁷¹ describe a number of similar vessels, few have been published in English.

²⁶³ Needham 608

²⁶⁴ Needham et al. 1978, 458.

²⁶⁵ Needham et al. 1978, 590.

²⁶⁶ Burningham 2005, 12.

²⁶⁷ Jahan (2006, 82) suggests that, “One of them is seen pulling a rope running through a pulley in order to unfurl the sail.”

²⁶⁸ Jahan 2006, 80–2.

²⁶⁹ Peterson 2006, 55–6.

²⁷⁰ Nooteboom 1949, 272–5.

Bowsprit and Headsail

Vessels I.b.86, I.b.88 and I.b.108 (right) have an unfurled headsail mounted on a bowsprit. It seems most similar to a Classical Roman *artemon* mast.²⁷² I.b.53 has a bowsprit, but no headsail. Vessel II.41 is the only outrigger not depicted with a bowsprit. Van Erp attributes the omission to the composition of the relief, as opposed to a technical detail. A tree separates the boat from the adjacent scene. There was simply no room for the bowsprit.²⁷³ Vessel I.B.a.193 may also have a bowsprit.

In his reconstruction, Peterson fixed the bowsprit to the side of the stem, as opposed to using a center set.²⁷⁴ In I.b.86, I.b.88 and I.b.108 the bowsprit is shown behind the large stem structure, indicating that it was placed behind it, on the starboard side. It must be noted that in the case of I.b.53, this would mean the bowsprit was offset on the port side, as it is still shown behind the stem structure, even though the vessel is headed in the opposite direction. We can come to several conclusions from this evidence. One option is that the placement in I.b.53 is an artistic mistake; the image has simply been flipped and it is showing a mirror of the port side, not starboard. Another option is that the artists were trying to show the bowsprit protruding from the center of the vessels, but failed to do so. A third alternative is that the artists were correct in their placement of the bowsprit, and it could be shifted from one side of the vessel to the

²⁷¹ Frese 1956, 106–10.

²⁷² Horridge 1978, 7.

²⁷³ Van Erp 1923, 29.

²⁷⁴ Peterson 2006, 54.

other, depending on wind and need for sail. If it could be moved, it could be removed. This could explain its absence in panel II.41.

Rowing Galleries

The rowing galleries are complex structures that deserve detailed investigation, which is beyond the scope of this thesis. Their structure is not uniform across the vessels. Hornell suggest that they are lightweight superstructures built out beyond the hull as seen on the Malay *praus* of Macassar. Light design is possible by constructing an open bulwark between higher wales.²⁷⁵

Vessels I.b.88, I.b.108 (right), and II.41 have oars protruding from their rowing galleries. Six oars are visible in I.b.88. Jahan described them as a “leaf-like motif” and suggested that the same “motif” was visible in I.b.108 and II.41.²⁷⁶ Jahan was clearly working from poor photographs or at some other disadvantage, because the shafts of the oars visibly extend through the rowing galleries in all cases. The only potential question is if they represent oars or paddles.²⁷⁷ The shafts of eight or nine oars are visible in I.b.108 (right), as well as the eroded faces of four rowers. At least eight oars are visible on II.41, as are the faces of seven individuals in the rowing gallery. It is possible that there were once more oars and operators, however, the back half of the vessel is heavily eroded.

²⁷⁵ Hornell 1946, 219.

²⁷⁶ Jahan 2006, 83.

²⁷⁷ Van Erp (1923, 23) did not think the vessels were paddled. The hulls were too large and the oars too long.

Van Erp suggested that the oarsmen in the galleries faced forward, and this seems quite likely. The position of their heads, in relation to the oars and direction of movement, indicates a pushing stroke.²⁷⁸ Pushed rowing is common in Asia. Standing rowing allows the oarsmen to throw their whole weight against the oars.²⁷⁹ Chinese sailors also rowed facing forward, a tradition that developed from the long South-East Asian boats. In general, the rowing strokes in this technique were much deeper than those in the European form.²⁸⁰ A clearer indication is the pivot point of the oar. I.b.88, I.b.108 and II.41 show the oars resting against a forward brace. This is consistent with pushed rowing. In panel I.b.108, the shaft of an oar appears to cross in front of the face of the second rower from the stern of the larger vessel, definitely indicating a forward facing position.

Both Van Erp and Peterson attempted to reconstruct the general form of the rowing galleries. Van Erp suggests that the structure of the rowing galleries might form the skeleton of a roof which could be covered with matting to shield the oarsmen from the sun.²⁸¹ Peterson suggests that the rowing galleries were supported by beams that project out past the hull. To create a strong structure, the frames would be extended to the full height of the gallery. Next to these frames, the shipwright erected a series of stanchions to create an open bulwark that could be closed with a wall of lightweight bamboo poles.²⁸² Both Van Erp's and Peterson's reconstructions place the rowers

²⁷⁸ Van Erp 1923, 23.

²⁷⁹ Van Erp 1923, 23.

²⁸⁰ Needham et al. 1978, 621.

²⁸¹ Van Erp 1923, 20–3.

²⁸² Peterson 2006, 53; His reconstruction seem improbable.

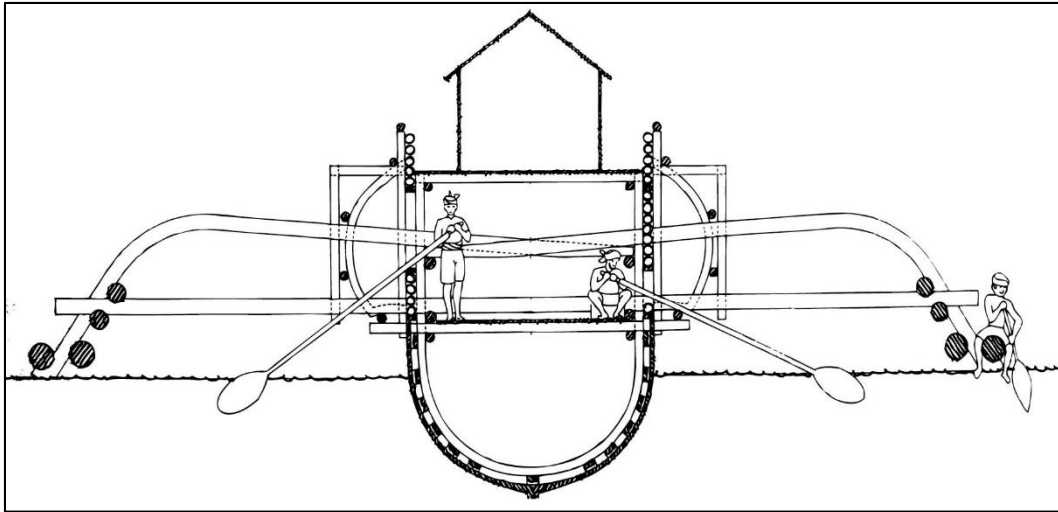


Fig. 50: Peterson's body plan of I.b.86, showing the configuration of the outriggers, float, and rowing galleries, as well as the positions of rowers and paddlers (from Peterson 2003, 53, fig. 8.7).

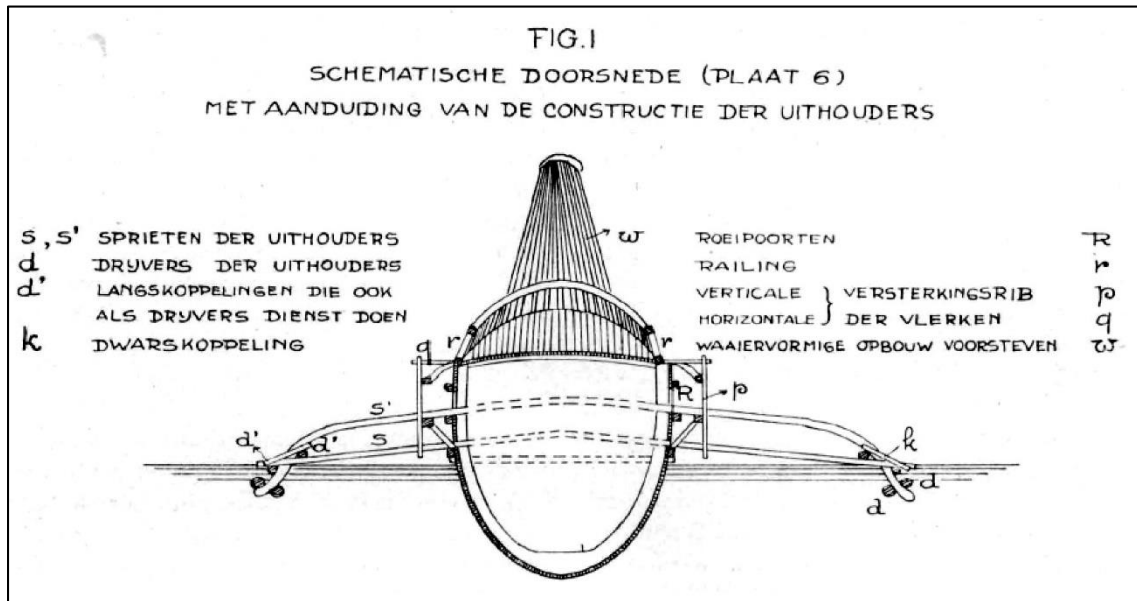


Fig. 51: Van Erp's body plan, showing the configuration of the outriggers, floats, and rowing galleries (from Van Erp 1923, 30, fig 1.)

inboard, with the rowing ports in line with the hull planking.²⁸³ Peterson hypothesized that rowers stood on the lower deck, facing forward; others might have sat on the floats and paddled.²⁸⁴

The investigation of Indonesian ship models might yield a more accurate reconstruction. The Rijksmuseum voor Volkenkunde (National Museum of Ethnology) in Leiden has a large model craft collection, with some 300 models from the Malay Peninsula, Indonesia, and the Philippines.²⁸⁵ A model of a Bamawa from Gowa in southwest Sulawesi has a fore and aft gangway secured to the bulwarks with outboard galleries for helmsmen.²⁸⁶ Another model has a rectangular rowing deck, erected on extended through beams. There are two levels of oarsmen.²⁸⁷ There are a number of ship models from Indonesia that display two levels of oars emerging from a rowing gallery. A pirate boat model from the Philippines, (made in Java), shows three rows of oarsmen. The inner row sat while the outer two stood. Their oars were linked by a length of rope to coordinate the stroke.²⁸⁸ Paddlers could also sit on the outriggers, facing forward. It is unlikely, however, that Borobudur vessels were biremes. The reliefs do not provide evidence of a second bank of rowers; all the oars seem to be originating from the same level.

²⁸³ Van Erp 1923, 20.

²⁸⁴ Peterson 2006, 54.

²⁸⁵ Frese 1956, 101.

²⁸⁶ Model 1009/108. Frese 1956, 109–10.

²⁸⁷ Model 37/578. Nooteboom 1949, 272.

²⁸⁸ Nooteboom 1949, 273–4.

Outriggers

Early descriptions of outriggers can be found in the works of Strabo (c. 23 C.E.), and the *Periplus of the Erythraean Sea* (mid first century C.E.).²⁸⁹ Sailors could climb out on the outriggers for balance, or to paddle.²⁹⁰ Although they did not necessarily originate in Indonesia,²⁹¹ the outrigger is a characteristic aspect of the boatbuilding tradition of the archipelago. Originally present throughout South Asia, they disappeared from west coast of India due to the influence of the Red Sea and Persian Gulf shipbuilding traditions.²⁹²

The outriggers depicted at Borobudur are complex. They consist of clusters of longitudinal floats attached to the vessel by three or four curved booms (Fig. 52). Outrigger booms were commonly attached to both floats and vessels with lashings. Lashing was also used to construct a composite boom if a shipwright could not obtain a boom with the appropriate downward curve.²⁹³ The curved booms are frequently supported by a horizontal crossbeam which extends past the end of the boom. Where they intersect, they are lashed to a longitudinal float for support. Additional floats are attached to the bottom of the curved boom below. Van Erp argues that although outrigger crossbeams primarily serve a structural purpose, the crew could have perched on them to counterbalance the windward side.²⁹⁴ Only one outrigger is

²⁸⁹ Hornell 1946, 216; Needham et al. 1978, 612.

²⁹⁰ Needham et al. 1978, 458.

²⁹¹ Hornell (1946, 264–5) suggests a riverine origin, perhaps from the Irrawaddy, Salween or Mekong.

²⁹² Hornell 1946, 221.

²⁹³ Hornell 1946, 256.

²⁹⁴ Van Erp 1923, 20.

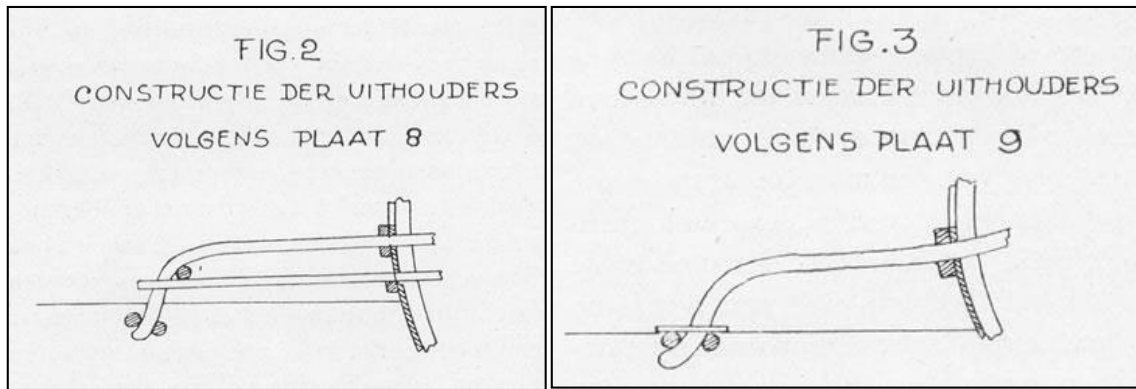


Fig. 52: Outrigger designs, according to Van Erp (from Van Erp 1923, 30, figs. 2, 3)

visible in each of the reliefs. Van Erp observed that since the outrigger is visible on the port profile of I.b.86, I.b.88, I.b.108, II.41 and starboard profile of I.b.53, the vessels must have double outriggers, as the artists wanted to indicate that these ships had an outrigger no matter which side of the ship was depicted in the relief.²⁹⁵

The largest craft to have double outriggers were *kora kora*. They were described and illustrated by the Spanish, Dutch, Portuguese and English mariners in Indonesia.²⁹⁶ Originally vessels of war that could carry as many as 100 marines on a central platform and 100 paddlers on a side, *kora kora* eventually became royal barges.²⁹⁷ *Kora kora* had several tiers of floats mounted on long curved booms. The floats were positioned one to four feet above the water. Paddlers sitting on the lower floats were constantly submerged up to their waist as the vessel rocked in the waves.²⁹⁸

²⁹⁵ Van Erp 1923, 19.

²⁹⁶ Horridge 1978, 9–12.

²⁹⁷ McGrail 2001, 302.

²⁹⁸ Hornell 1946, 259.

It is not clear whether the double outriggers would have helped or hindered the vessels in the ocean. Mookerji and Van Erp argued that the Borobudur ships represent the largest and most complex watercraft of the period, and would have conducted a good deal of the traffic between Java and India.²⁹⁹ Peterson similarly suggested that the double outrigger would be a boon on rough seas, and that ships with outriggers would be able to sail to Bengal or the South China Sea.³⁰⁰ Manguin argues that double outriggers would be a considerable hindrance to ocean-going vessels and would only be used in protected seas.³⁰¹ Van Erp notes that they could easily be torn apart in turbulent open-ocean waves.³⁰²

Other Vessels

Four of the vessels at Borobudur are completely different from the Indonesian type watercraft. They have been largely ignored in the literature. I.a.115 is a small ferry boat. I.b.23 and I.B.a.54 are vessels with prominent protruding beams and single pole masts. They are generally identified as having lugsails, but this is a clear misinterpretation. They are more likely South Asian or even Arabian vessels. I.B.a.193 is unlike all the other ship reliefs. It has a stern structure, possible bowsprit, and possible pole mast.

²⁹⁹ Van Erp 1923, 30.

³⁰⁰ Peterson 2006, 55.

³⁰¹ Manguin 1980, 273.

³⁰² Van Erp 1923, 29.



Fig. 53. Vessel I.a.115 is a river ferry with dual rudders and deck structure (photograph modified from Anandajoti 2009h).³⁰³

Vessel I.a.115 is a small boat used as a river ferry. It has a raked bow and curved, upright sternpost, a potential stern reinforcement,³⁰⁴ dual rudders, and a deck canopy supported by four stanchions with a punting pole on top.

³⁰³ From Anandajoti 2009

³⁰⁴ Van Erp 1923, 11.



Fig. 54. Vessel I.b.23 appears to be a double ended vessel with protruding beams, a single pole mast, and a furled sail. The left half of the relief was never completed (from Van Erp 1923, 12, afb. 3).

Vessel I.b.23 is one of the two pole-masted vessels depicted at Borobudur. Unfortunately, the left end of the panel is incomplete. It is difficult to determine which end is the bow. One of the flat topped posts is tall and vertically oriented, the other is shorter and raking. This vessel has a thick pole mast and circular devices (probably beams) below the protruding cross beams beneath the sheerstrake. The sail is only visible on the right side of the pole mast.



Fig. 55. Vessel I.B.a.54 appears to be a double ended vessel with protruding beams, a single pole mast, and an out of control boom footed square sail. It is under attack by a sea monster. The left hand side of the relief has been damaged (modified from Van Erp 1923, 14, afb. 4).

Vessel I.B.a.54 is the second of two vessels with pole masts. The left side of the panel has been damaged, obliterating most of the raked sternpost. The stem has a flat top, and is less raked. Vessel I.B.a.54 has a thick pole mast and protruding cross beams. The sail is probably a boom-footed square sail. Although it has been heavily damaged, it is very similar to the sail depicted in I.B.a.193.



Fig. 56. Vessel I.B.a.193 is unlike the other vessels seen at Borobudur It has a stern structure where the helmsman is standing, a square sail, a possible single pole mast or bipod mast, and a possible bowsprit (modified from Van Erp 1923, 15, afb. 5).

Vessel I.B.a.193 is unlike any of the other ships in the reliefs. It has a vertical stem and sternpost that are nearly the same height, a square sail whipping in the wind, a pronounced sheerstrake, a stern structure, and an upright rudder. The mast spar(s) are difficult to differentiate from the rigging. It may be a single pole mast. It may also have a bowsprit. It should not be considered the same type of ship as I.b.23 or I.B.a.54.

The pole-masted Vessels

Vessels I.B.a.54 and I.b.23 likely represent the same type of ship, as they share numerous stylistic similarities not seen in the other Borobudur Vessels. They are also located close to each other. Both are found on the south side of the monument in the east end of the first gallery, though I.B.a.54 is on the upper register of the Balustrade and I.b.23 is on the gallery wall. Their proximity may suggest that one influenced the other. I.B.a.54 has a prominent, somewhat vertical stem and raked, shorter sternpost. We cannot convincingly identify the bow or stern in I.b.23, but it also has a taller vertical post and shorter raked post. With I.B.a.54, the taller post (left) is likely the bow. Both have a series of protruding crossbeams, though those in I.B.a.54 are spaced further apart. The sheer curves gently up at both ends of the vessels, and fades as it reaches the post. This gives the impression of a double-ended vessel with a sharp bow and stern.

Both vessels have a thick, central pole mast. The left side of panel I.b.23 was never completed, and half of the sail is missing. This has led to a great deal of confusion and the misinterpretation of the vessel. Needham argued that the sail is only shown to the right (aft) of the mast because it is similar to a Chinese lug sail. He concludes that the forward luff was intentionally left off to emphasize the fore-and-aft character. This conclusion has been frequently reiterated, by McGrail, Jahan, and even Manguin.³⁰⁵ Jahan suggests that the sail in I.B.a.54 is also a lugsail.³⁰⁶ However, I do not think that

³⁰⁵ McGrail 302; Jahan 2006, 79; Manguin 1993: 263.

³⁰⁶ Jahan (2006, 79, 85) Remarks that “The lug-sails seen in the vessels shown in panels 1 [I.B.a.54] and 2 [I.b.23] appear to be a local adaptation of a device that originated in China” and points out to “incredulous skeptics” that there was Chinese contact with Java from at least the 5th c. C.E. The skepticism should not be about Chinese contact, but about the analysis of this sail.

the artist intended to depict a fore-and-aft rig. It only appears to be so because half the sail is missing. It was either never carved (like the rest of the left side) or the stone was replaced during renovations. It appears that the crew are depicted in the process of raising a square sail. The yard is completely horizontal (partly a product of the space constraints), I believe that it would likely have extended just as far on the other side of the mast. As all the other characteristics of I.b.23 and I.B.a.54 match, it is likely they have the same type of sail. We can see the rig deployed in I.B.a.54, and appears to be a boom-footed square sail.

The vessels from I.B.a.54 and I.b.23 are distinct from the other nine, though they have often been grouped together with I.B.a.193 and the left hand vessel from I.b.108.³⁰⁷ I.B.a.193 has a similar hull shape, but has a clear stern structure and bowsprit, lacks through-beams, has raised circular bosses and has a tripod mast instead of a thick pole mast. Likewise, the left hand vessel in I.b.108 has a similar hull shape and a circular boss, but lacks through-beams. Close inspection seems to indicate a bipod mast and quarter rudders. These vessels should not be categorized together.

Preliminary analysis indicates that vessels I.b.23 and I.B.a.54 were double-ended vessels with prominent crossbeams, single pole masts, and rectangular/square sails that had an upper and lower yard. This description is closest to Indian Ocean vessels operated from Arabia and South Asia (Fig. 57).³⁰⁸ This interpretation is quite different from those put forward by Needham and Jahan, who suggest that the ships represent square-

³⁰⁷ Jahan 2006, 81–3.

³⁰⁸ See Agius 2005.



Fig. 57. This photograph is of a model of *Jewel of Muscat* that was built by Nick Burningham. The full-sized reconstruction was based on the Belitung shipwreck, a 9th-century Arabian ship. The vessel is double ended, with boom footed square sails. It is very similar to vessels I.B.a.54 and I.B.a.193 (image from Vosmer 2011, 125, fig. 90).

ended Chinese-style vessels with fore-and-aft rigs.³⁰⁹ This drastic contrast is a good indication that a precise, on-site investigation of the panels is necessary.

Artistic Context

The Borobudur Vessels are not ships, but representations of ships. Physical ships and ship illustrations are governed by drastically different constraints. A real ship has to be seaworthy. It needs to be able to serve its purpose effectively, whether that purpose is to carry cargo, transport passengers, engage in combat, or explore new lands. It needs to float, move efficiently through the water, and effectively harness wind and/or human power. None of these conditions govern iconography. A picture of a sailing ship does not need to be able to sail. It does not matter if the sail is backward or the rigging is unmanageable. The hull does not need to be seaworthy. It can have an impossible shape. Size does not matter. An image of a vessel with six sailors could represent a lifeboat or it could represent an enormous ship. Wachsmann notes that ship representations are “refracted through the thought processes, the artistic abilities, and the limitations of their creators.”³¹⁰ These distinctions should be kept in mind when interpreting the vessels at Borobudur.

Scholars have repeatedly observed that the figures in the Borobudur reliefs are disproportionate to the vessels. For instance, Peterson argued that while the individuals aboard the vessels were exaggerated, “the relative size of all the ship parts seemed to be

³⁰⁹ Needham et al. 1978, 458; Jahan 2006, 81–3.

³¹⁰ Wachsmann 2013, xix.

accurately represented.”³¹¹ Panel I.b.82 is the most extreme example. The height of the figures is equivalent to the length of the boat, and the hull is only a hand span deep! It has retained the long skinny proportions of the ship’s boat, I.b.108 (left), but has been scaled to fit the scene. Vessel I.B.a.54 is another example. The sixteen figures crammed aboard the boat are unrealistically proportioned compared to the vessel’s dimensions. We see this distortion throughout the panels; it comes as no surprise, as artistic representations are routinely disproportionate. Schlingloff observes that the necessity of depicting people and ships within a limited space hindered realistic representation.³¹² I think it is also important to emphasize that the distortions represent deliberate choices on the part of the artist, made because the characters and their actions are the centerpieces of the stories, while the ships themselves are embellishments.

This simple observation - that the stories drive the design of the panels - should be kept in mind at all times when considering the design and construction of the ships. If it was important for the artist to tell a tale with a great number of characters aboard a ship, the vessel would be stretched accordingly. A familiar comparison is perhaps Di Vinci’s *Last Supper*, which depicts Christ and all the apostles all sitting along a single side of a table, which has been made unreasonably long, so that we can see their faces and interactions. While this is perhaps a superficial example, it is an important point to remember. Borobudur vessels are so well executed that they can draw one into over interpretation (as with Peterson’s reconstructions).

³¹¹ Peterson 2006, 42

³¹² Schlingloff 1988, 199.

Wachsmann observes both the artistic medium and space constraints cause representations of ships to deviate from the real objects.³¹³ After thoroughly examining the vessels, it appears that panel proportion and division are the primary factors determining the size, shape, and complexity of the Borobudur vessels. The long panels of the first gallery are commonly divided in half or in thirds (Fig. 58). These subdivisions show related scenes, a progression of events, or serve to clarify the characters and activities depicted. The watercraft in half-panel format (I.b.86, I.b.88 and I.b.88) have much more detail than those compressed into third-panel format (I.a.115, I.b.23, I.b.53, I.b.82) or those on the balustrades (I.B.a.54 and I.B.a.193).

We can see the effects of compression when we compare three of the outrigger-type ships, I.b.53, I.b.86, and I.b.88. Each has the exact same configuration of an outrigger with three booms, rowing galleries, bowsprit, and two bipod masts. I.b.53 is shortest, with 6 rowing stations and 6 sailors, I.b.88 has 10 stations and 10 sailors, while I.b.86 is the longest with 12 stations and 19 sailors. One could argue that each panel represent vessels of different sizes.³¹⁴ This is not necessarily the case. Vertically, each ship consistently fills 90-95% of the panel. The yard ends nearly reach the top of the frame, while there is only a small gap of water between the outrigger and the bottom of the frame. I.b.86 fills a much greater horizontal area than I.b.53, which makes I.b.86 appear long and skinny while I.b.53 looks practically tubby (Fig. 58). They have the exact same configuration, and likely represent the same type of vessel, just compressed

³¹³ Wachsmann 2013, xix.

³¹⁴ Manguin 2010, 185.

I.b.53



I.b.86

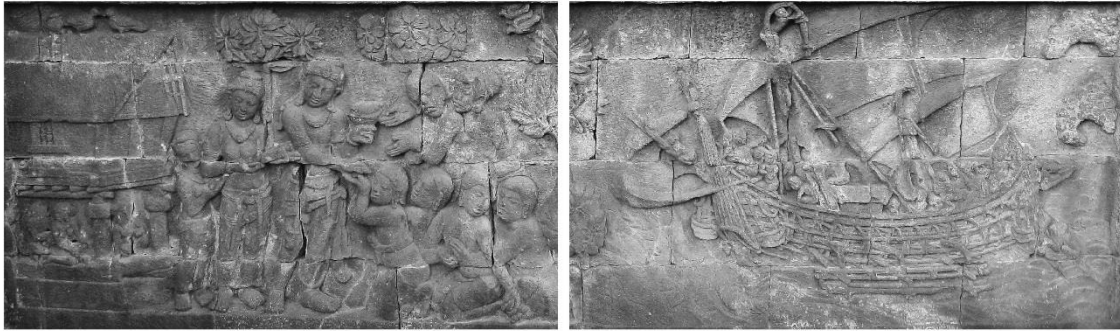


Fig. 58. Panels with ship reliefs are frequently divided in half (as with I.b.86, *bottom*) or in thirds (as with I.b.53, *top*). These divisions govern the way that the ships were designed (adapted from Anandajoti 2009c [*top*] and Anandajoti 2009d [*bottom*]).

and uncompressed. The difference is how much space the artist had to work with and what events they needed to show.

Extreme distortion is visible in panel I.b.23. The panel frame did not allow the artist enough room to properly show the sail. It is absolutely horizontal and pressed against the top of the frame. We can also see that the artist compressed the left end of the vessel to fit it into the panel, as the outline of the incomplete sternpost is completely vertical and pressed against the side of the frame.³¹⁵ Vessel II.41 is the only outrigger without a bowsprit. As Van Erp points out, this is likely because there was no room for it in the frame.³¹⁶

The point of these observations and critiques is that the Borobudur Vessels were not created in a vacuum. They are framed by other scenes. The needs of those scenes dictated how much space the artist could work with. If space was ample, they created a beautiful, intricate vessel such as I.b.86. If they had to include more events, the artists allocated less space to the ships and compressed their features, as with I.b.53. In examining the details of these ships, it is important to remember that the vessels are components of stories. The activities and individuals aboard are the centerpieces of the narratives, while the watercraft are elaborations.

³¹⁵ Perhaps the space constraints were one of the factors that prompted the artist to abandon the relief.

³¹⁶ Van Erp 1923, 29.

CHAPTER V

SEAFARING AND SEA STORIES

Overview

The eleven vessels depicted on the walls of Borobudur are components of Buddhist seafaring stories. Nine of the vessels are associated with known legends, while two (I.b.23 and I.b.53) belong to stories that have not been identified. These ships and stories should be considered together; the Buddhist narratives help identify what is going on in the reliefs, while the reliefs provide a window on how seafaring, trade, ships, and mariners were perceived in ancient Java.

Buddhist literature contains rich descriptions of sea travel, storms, shipboard life, and navigation, as well as information about ship construction.³¹⁷ This familiarity with seafaring is the product of Buddhism's intimate connection with maritime trade and travel.³¹⁸ Many of the monks, nuns, scholars, and pilgrims who spread Buddhism throughout Asia embarked on long sea voyages.³¹⁹ They established ties with maritime communities, and it is likely that Jātaka and Avadāna stories drew on preexisting maritime folklore traditions.³²⁰ The dangers, rigors, and temptations of the sea became components of a vast metaphor in which the ocean represents *samsāra* (the endless cycle of death and rebirth) and ocean crossing represented the process of awakening and obtaining enlightenment.³²¹

³¹⁷ Ray 1994, 180.

³¹⁸ See Chapter II

³¹⁹ Kandahjaya 2004, 73–79.

³²⁰ Shaw 2012, 132.

³²¹ Shaw 2012, 132; Tatelman 2013, 114.

Borobudur's narratives include tales of long open-ocean journeys (I.B.a.54), miraculous river crossings (I.a.115), shipwrecked merchants (I.b.108 and I.B.a.193), master navigators (I.B.a.54 and II.41), voyages to new lands (I.82, I.b.86, and I.88), and salvation from the sea (I.B.a.193), as well as stories that remain mysterious (I.b.23 and I.b.53). The vessels in these stories are material evidence of the connection between Buddhism and seafaring. The actions and reactions of the ninety-six figures depicted aboard the ships provide unique insights into the Javanese perception of sailing, the ocean, and its dangers.³²² After a review of the role of seafaring in Buddhist literature, this chapter will describe each of these vessels, their crew, and their associated legends.

Sea Stories in Indian Literature

The Buddhist embrace of seafaring was unique in India. Hindu scripture and law codes contained prohibitions against travel by boat, and the *dharmasūtras* (Hindu codes of law) go as far as to equate sea travel and maritime trade with crimes such as theft from a Brahmin.³²³ Seafaring was not considered a prestigious activity, and maritime activities play only very small, if ancient, role in the vast corpus of Indian literature. The second millennium B.C.E. hymns of the *Rigveda* mention merchant voyages and sailing to distant islands.³²⁴ One of these hymns tells of how prince Bhujyu is shipwrecked during a naval invasion. His treacherous father, Turga, forsakes him in the billowing ocean, leaving him “as a dead man leaves his riches.” Bhujyu is saved by the *Ashvins*

³²² Two of the eleven ships essentially do not have people aboard (I.a.115 and I.b.82).

³²³ Shaw, however, points out that Brahmins were traveling between India and Southeast Asia, so the prohibitions may not have been as serious as these laws seem to indicate (Shaw 2012, 130–1).

³²⁴ For instance, in *Rigveda* verses I.25.7, I.48.3, I.56.2, I.116.3–5, and VII.88.3 (Griffith 1896).

(twin Vedic gods) in the form of birds who carry him to shore and return him home in a galley of a hundred oars.³²⁵ While Vedic literature mentions incidents in the sea, it does not provide evidence of extensive maritime travel.³²⁶ Shaw observes that even in India's great epics, the *Mahābhārata* and the *Rāmāyana*, there is almost no travel by watercraft. She points out that this is very unusual, since many of the great works of ancient middle-eastern and western literature contain seafaring elements, including the stories of *Gilgamesh*, *Athrahasis*, the *Iliad*, the *Odyssey*, and the *Argonautica*.³²⁷ The avoidance of seafaring is not simply geographical. In the *Rāmāyana* epic, the characters must cross between two lands separated by a vast ocean. However, in both cases the crossing is magical, and not by boat.³²⁸

Later Indian laws deal with the practical aspects of maritime transport, though these texts mostly deal with riverine travel. The *Manusmṛiti*, a Hindu code of laws from the turn of the Common Era, contains a number of rules concerning maritime trade, ferry/boat fees (8.404-406), proper compensation by boatmen in the case of negligence (8.408-409), as well as a stipulation that marine insurance rates should be determined by experienced seafarers (8.157). These complex laws indicate the advanced state of Indian riverine commerce in the early first millennium C.E.³²⁹

Despite the obvious importance of maritime commerce, it is not reflected in Hindu folklore. Where sea travel is mentioned, it is often in a metaphorical sense. India's

³²⁵ Griffith 1896, vv. I.116.3–5.

³²⁶ Ray 2003, 13.

³²⁷ Shaw 2012, 131.

³²⁸ Shaw 2012, 131.

³²⁹ Bühler 1969, pt. 8.

great *Mahābhārata* epic (probably compiled between the fourth century B.C.E. and fourth century C.E.) frequently and vividly refers to shipwrecks and the agonies of drowning sailors. In an example from the *Karna Parva* (Book 8 of the *Mahābhārata*), overwhelming grief is described like “shipwrecked mariners struggling on the bosom of the vast deep,”³³⁰ while in the *Anugita Parva* (Book 14) a feeling of joy is likened to that of castaways who have found a boat and made it safely to shore.³³¹ The ancient literature leaves one with the impression that the ocean was regarded as a dark and foreboding place, and that the sailors’ plight was a source of horror and fascination.

Sea Stories in Buddhism

Buddhist maritime folklore demonstrates a familiarity and comfort with seafaring that is not found in earlier Indian literature. This is not surprising, considering the intimate relationship between Buddhism and maritime trade. The *Jātaka* and *Avadāna* traditions developed during the first half of the first millennium C.E., during the rapid expansion of seafaring and maritime trade in South and Southeast Asia (see Chapter II). Although the process of recording, collecting, and annotating Buddhists legends began its florescence in the fifth century C.E., the oral traditions that served as source material had been evolving for quite some time, with some *Jātakas* dating as early as the third century B.C.E.³³²

³³⁰ Ganguli 1889, sec. II.

³³¹ Ganguli 1896, sec. LXX.

³³² Shaw 2012, 136.

The prevalence of seafaring themes throughout the *Jātakas* indicates the importance of maritime trade and ocean navigation during this period.³³³ Much more technical information is available in the Buddhist stories than in other types of literature from ancient India. Where boats are mentioned in the Hindu texts, they generally describe vessels plying the great rivers of India. Boats within the *Jātaka* tales are seafaring craft that risk the vast unknown of the ocean.³³⁴ The *Jātakas* contain references to a wide range of nautical information, including the names and capacities of different types of ships, as well as various terms for the masts and components of the rigging. Buddhist texts also give us the titles used for captains, helmsman, navigators, the various seamen involved with shifting the sails, rowers, and even bailers (a very essential role).³³⁵

It is likely that Buddhist seafaring stories drew on preexisting maritime folklore traditions. Sea stories were undoubtedly important components of community life along the maritime periphery of South and Southeast Asia. Seafaring tales would have been passed amongst sailors and from port to port. They would have been alive in the folklore, dance, song, and dramatic performances of maritime communities.³³⁶ Shaw suggests that these vernacular versions probably thrived in ancient India, but were almost never preserved in Hindu literature as high-caste individuals seldom traveled by boat and did not see it as a “ground for heroism, adventure, or narrative.”³³⁷ Buddhists,

³³³ Levi 1930, 597.

³³⁴ Shaw 2012, 130.

³³⁵ Schlingloff 1988, 198.

³³⁶ Shaw 2012, 132.

³³⁷ Shaw 2012, 132.

however, had no stipulations against sea travel (other than stipulations that monks and nuns should travel separately).³³⁸ We can imagine that the descriptions of the terrors and dangers of sea travel would have been unwelcomingly familiar to the many monks, nuns, and Buddhist scholars who spread Buddhism along the sea routes.

Buddhist seafaring literature is unique in its presentation of the nautical/maritime traveler as a hero,³³⁹ and its focus on common people, who are largely ignored in the Vedic texts.³⁴⁰ *Jātakas* and *Avadānas* describe the plights of merchants, travelers, sailors, and navigators, in all of their various occupations. Wealthy patrons could relate to stories about heroic merchants, as well as tales that emphasized the risks and temptations of maritime trade. Seafaring stories would likely have had great popular appeal, and reflected common experiences of risk, loss, and success familiar throughout the Buddhist maritime world.

The Role of Sea Stories

The sea stories in Buddhist literature serve a variety of purposes, but at their heart, they are designed to translate complex ideas into a comprehensible form. The process of translating ideas is central to Mahāyāna Buddhist practice. Mahāyāna Buddhists believe that one should seek enlightenment as a means to liberate all beings from the suffering caused by *saṃsāra*, the endless cycle of death and rebirth. The

³³⁸ Ordinations could even be performed on boats (Shaw 2012, 134).

³³⁹ Shaw 2012, 130.

³⁴⁰ Hall 1985, 37.

spiritual journey is not only for the self, but for the common good. Teaching, instruction, and communication are, therefore, important aspects of Mahāyāna practice.

Two important Buddhist concepts are *upāya*, which is frequently translated as pedagogy, and *upāya-kaushalya*, which is traditionally translated as “skill in means” or “expedient means.”³⁴¹ “Skill in means” is a complex idea, with several interpretations. For Mahāyāna Buddhists, it was partly a process of effective teaching, using tools that were best suited to the listener, whether they involved stories, parables, abstractions, diagrams, or even different systems of belief. In this, the Buddha was a model pedagogue. He had a unique style of listening, communicating, and responding to those around him. He adapted his approach depending on his audience.³⁴²

Skillful teaching and guidance occupy an important place in the *Gaṇḍavyūha*. To continue on his journey to enlightenment, the pilgrim Sudhana must first learn how to enlighten others. He is instructed to seek the ship captain Vaira, a masterful teacher. Sudhana finds Vaira in Kutagara, speaking to a great host of merchants, mariners, and all types of individuals. Vaira draws on his experience as a sailor and uses sea stories to explain the virtues of the Buddha.³⁴³ He adapts his teachings to his audience and uses his own experiences and knowledge to guide others to insight. It is no coincidence that Vaira is a ship captain. Buddhists used the metaphor of crossing the ocean to represent the process of obtaining enlightenment.³⁴⁴ The ship captain was one who assisted others

³⁴¹ Schroeder 2001, 3.

³⁴² Schroeder 2001, 9–10.

³⁴³ Cleary 1993, 1260–1.

³⁴⁴ Shaw 2012, 133; Tatelman 2013, 114.

to cross over. The sea stories in Buddhist literature serve the same purpose as Vaira's – to help beings progress toward insight through comprehensible metaphors and allegories.

Spiritual and Narrative Themes

Buddhist seafaring and shipwreck stories seem to fall into three general narrative categories. In the first category, the ocean voyage is simply a narrative device, while the destination is important. A shipwreck or wayward vessel is used to deliver the protagonist from the mundane world to a mythical place or island. Maitrakanyaka's story (*Avadānaśataka* No. 36, the *Maitrakanyaka-avadāna*) is an example from Borobudur. When Maitrakanyaka's father drowns, it initiates an inevitable sequence of events through which Maitrakanyaka is drawn to the sea. When he is similarly shipwrecked, the event transports him to a series of mythical islands where he is given rewards and punishments that stem from his actions in the first half of the story.³⁴⁵

A second category of sea stories are salvation stories, in which the story reaches its climax when the central characters are delivered from the sea by the intervention of a divine being or Bodhisattva. An example from Borobudur is the tale of the Turtle (*Avadānakalpalatā* No. 97, the *Kacchapāvadāna*), in which the bodhisattva appears as a great turtle to rescue a group of shipwrecked merchants. He carries them safely to shore upon upon his back, and even offers up his body when they are starving.³⁴⁶

³⁴⁵ Krom 1927, 301–11.

³⁴⁶ Krom 1927, page number required.

In the third category of stories, the voyage is the central component, serving as a metaphor for spiritual journey and enlightenment. One example from the walls of Borobudur is the story of Supāraga/Suppāraka the blind navigator (*Jātakamāla* No. 14, the *Supāraka* and *Jātaka* No. 463). Suppāraka and his crew cross the seven oceans of the world. Although his great skill as a navigator allows him to know where they are, not even Suppāraka can control the divine wind. Their journey takes them to the edge of the world. Faced with destruction, Suppāraka's virtue and good action deliver them from their fate.³⁴⁷

Salvation Stories

Salvation from the sea is a central component of many Buddhist sea stories. Salvation stories predate Buddhism. There are a number of ancient Indian stories in which mythical forces rescue heroes from the sea. In the *Rigveda*, prince Bhujyu is shipwrecked and saved by gods in the form of birds who carry him to shore.³⁴⁸ Another example is the story of Gokarna from the *Varāha Purāna*.³⁴⁹ In this tale, Gokarna is caught in a vicious tempest and then stranded at sea. He is saved by his wise parrot, which flies to a temple across the ocean and returns with a flock of divine birds that carry Gokarna away.

Although salvation stories are found in ancient Indian literature, personal and spiritual salvation play a much more central role in Buddhist ideology, where salvation

³⁴⁷ Cowell 1901, 87–90.

³⁴⁸ Griffith 1896, I. I.116.3–5.

³⁴⁹ Iyer 2003, 496–510.

from *saṃsāra* (the cycle of death and rebirth) is the ultimate goal. In one subset of Avadāna and *Jātaka* tales, known as “gift-of-the-body” stories, the bodhisattva sacrifices himself to bring about the salvation of others. One example is the story of the turtle (a former incarnation of the Buddha) who rescues the sailors from the sea and then feeds them with his body (*Avadānakalpalatā* No. 97, the *Kacchapāvadāna*). A similar version is told in which a ship captain sacrifices his body so that others can use it as a raft (*Mahāvastu* Vol. III, the *Pancakānaṃ Bhadravargikānāṃ Jātaka*). Ohnuma argues that these stories go beyond demonstrating selflessness. Physical rescue from the ocean corresponds to spiritual salvation and liberation from the ocean of *saṃsāra*. The Buddha’s “gift-of-the-body” in his past life is analogous to the Buddha’s gift of *dharma* in his final incarnation.³⁵⁰

Just as the Buddha’s teachings offered salvation from the cycle of *saṃsāra*, bodhisattvas were said to deliver men from the eight dangers of life: suffering, fire, flood, sword, chains, demons, enemies and distress at sea.³⁵¹ Over time, bodhisattvas developed into saviors that could be called upon by sailors during times of distress. Avalokiteśvara (also Padmapāni, or in Chinese, Guānyīn) became the patron of many mariners, giving courage to those who sailed across the distant seas.³⁵² In his travelogue, Faxian calls upon Guānyīn, saying “I have travelled far in search of our Law. Let me, by your dread and supernatural (power), return from my wanderings, and reach my resting-

³⁵⁰ Ohnuma 1998, 325–6.

³⁵¹ Rao 1991, 186.

³⁵² Ray 1994, 153.

place!”³⁵³ Indian Ocean seamen took Buddha Dīpaṃkara (referred to as the ‘calmer of the water’) as their protector.³⁵⁴ Second century C.E. sculptures from the caves of Kanheri are some of the earliest depictions of divine deliverance from the sea. One scene shows two shipwrecked sailors praying to the Bodhisattva Padmapāni for rescue.³⁵⁵

Gods and goddesses were also sources of salvation in Buddhist tales, though the authors used the occasion to highlight the absurdity of praying to the many gods. One of the best examples is *Jātaka* No. 442, the *San̥kha-Jātaka*, in which the goddess of the sea, Maṇimekhalā, comes to the rescue of a shipwrecked Brahmin, Saṅkha. Saṅkha was an exceedingly wealthy man who ran numerous charities in Benares. Realizing that once he gave away all of his wealth he would have nothing left to give, he built a ship and organized a great trading voyage to the land of gold to gather new riches. During the journey, his vessel took on water and sank. He had to swim for shore with his servant.³⁵⁶ After swimming for seven days they are rescued by Maṇimekhalā, the goddess of the sea. This event is mirrored almost exactly in *Jātaka* No. 539, the *Mahājanaka-jātaka*. Mahājanaka was an exiled prince of Videha (Nepal).³⁵⁷ In the Buddhist tale, he sails for the land of gold to gain enough wealth to take back his rightful kingdom. As with Saṅkha, his ship breaks apart in the ocean and sinks. He swims for seven days and is rescued by Maṇimekhalā.³⁵⁸

³⁵³ Fa-hsien 1886, 113.

³⁵⁴ Hall 1985, 37.

³⁵⁵ Rao 1991, 185.

³⁵⁶ Cowell 1901, 10.

³⁵⁷ The Janakas were a prominent dynasty of kings frequently featured in Indian literature, including both the Upanishads and the epics (Levi 1930, 602).

³⁵⁸ Cowell 1907, 22–23.

Shaw points out that instead of turning to the Brahmanic pattern of empty prayer and ritual, the heroes in these two tales take clear action and use common sense.³⁵⁹ When the ship starts to sink, they are proactive. Knowing they will have to swim for their lives, Saṅkha and his servant rub their bodies with oil (likely to help them glide through the water and retain some heat). Mahājanaka takes similar actions, dipping two sleek robes in oil.³⁶⁰ In both stories the heroes mix powdered sugar with ghee, and eat as much as they possibly can (stocking up on the richest available sources of short term and long term energy). The heroes then climb the mast to get their bearing (demonstrating awareness of their situation and location). Saṅkha points “in that direction... ..lies our city.” Instead of waiting for things to get worse aboard, Saṅkha and his servant do not hesitate; they dive overboard into the sea of dangerous fish and turtles.³⁶¹ In the *Mahājanaka-jātaka*, Mahājanaka waits until the ship is awash, but also dives into the sea from the mast.³⁶²

The heroes swim for seven days, relying on their willpower alone to deliver them safely to shore. After seven days, the goddess Maṇimekhalā arrives to rescue them. It is a comic event, and it seems the Buddhist storytellers enjoyed the opportunity to make fun of the gods. Maṇimekhalā, goddess of the sea, had been charged by the four lords of the world to rescue beings from the ocean. Enjoying divine pleasures, she was lax in her duties, and seldom tended her charge.³⁶³ After seven days had passed, she noticed the

³⁵⁹ Shaw 2012, 143–4.

³⁶⁰ Cowell 1907, 22–23.

³⁶¹ Cowell 1901, 10.

³⁶² Cowell 1907, 22–23.

³⁶³ Cowell 1901, 11; Cowell 1907, 22–23.

poor, virtuous heroes determinedly struggling in the ocean. Maṇimekhalā's first reaction was not compassion for the unfortunate mortals, but fear for her own position. In the *Saṅkha-jātaka*, she thinks "were he to die, great would be my blame."³⁶⁴ In the *Mahājanaka-jātaka*, her first thoughts are similarly self-centered: "If Prince Mahājanaka had perished in the sea I should [not] have kept my entry into the divine assembly!"³⁶⁵ Her response is ineffective, further demonstrating how oblivious the gods are to the needs of mortals. In the *Saṅkha-jātaka*, she flies down and offers *Saṅkha* a plate of food on his fasting day. A good Brahmin, he of course cannot eat.³⁶⁶ She then engages in a long conversation with the hero/heroes as they struggle to stay afloat.

Maṇimekhalā asks Mahājanaka why he continued to struggle in the vast ocean without hope of rescue. He gives a rather pithy response. Cowell and Rouse (1907) translates it as, "Knowing my duty in the world, to strive, O goddess, while I can, | Here in mid-ocean far from land I do my utmost like a man."³⁶⁷ Levi, on the other hand, quotes Mahājanaka as saying, "I know what the world is and what the price of effort is. | This is why I am striving in the ocean even without sighting the shores."³⁶⁸ Both versions show Mahājanaka has a realistic (and perhaps cynical) view of existence – that life, by its nature, was an endless process of striving and struggle. Mahājanaka highlights his pragmatism, saying, "Drowned are the others, – I am saved, and thou art standing by

³⁶⁴ Cowell 1901, 11.

³⁶⁵ Cowell 1907, 23.

³⁶⁶ Cowell 1901, 11.

³⁶⁷ Cowell 1907, 23.

³⁶⁸ Levi 1930, 604.

my side. | So I will ever do my best to fight through ocean to the shore; | While strength holds out I still will strive, nor yield until I can strive no more.”³⁶⁹

Spiritual Voyages

Buddhist sea stories are frequently allegorical. The various components of the voyages, (ships, seas, navigators, monsters, storms, and treasures), serve as common, though not universal metaphors. The sea represents a variety of elements, from the realm of the mind to the temptations and defilements of life.³⁷⁰ The allegorical role of the ocean is a pan-Indian concept, with roots in ancient Vedic texts. Joel Tatelman observes that “the ceaseless churning of the waves, the vastness, the danger, the sudden and unpredictable storms, the shoals and reefs – even, for traders, the attraction – are all, by analogy, properties of the endless cycle of rebirth and death.”³⁷¹

In stories where the ocean represents *saṃsāra*, the ocean crossing becomes the central metaphor for the Buddhist path. “Crossing to the far shore” is the process of awakening, searching for understanding, finding salvation, acquiring merit, and transcending.³⁷² The image of “reaching the far shore” represents the acquisition of insight, enlightenment, liberation, or nirvana. Those beings who “have crossed over” are the enlightened ones, the bodhisattvas, and mystical beings.³⁷³

³⁶⁹ Cowell 1907, 23.

³⁷⁰ Shaw 2012, 129.

³⁷¹ Tatelman 2013, 114.

³⁷² Tatelman 2013, 114.

³⁷³ Shaw 2012, 133.

In allegorical context, ships represent the actions and means by which one crosses over the ocean.³⁷⁴ The Buddha compares *dharma* to a raft that one clings to until one has crossed the ocean of suffering. The metaphor of *dharma* as a raft is repeated throughout Buddhist literature, and extends beyond seafaring stories.³⁷⁵ Ohnuma points out that the dharma-raft metaphor is used in *Jātakamāla* No. 30, a story in which an elephant sacrifices his body to feed hungry travelers, turning it “into a raft for crossing [the ocean of] misfortune.”³⁷⁶ The Bodhisattva also serves as a vessel, and Buddhist literature frequently describes the Buddha as a strong boat. Sudhana’s teacher Vaira is compared to a ship that, through instruction, transports beings across the ocean of being. In seafaring stories, ships are vehicles that transport characters from one place to another. The concept of a “vehicle” is the central Mahāyāna metaphor, as *mahāyāna* means “great vehicle” or “great carriage.” The term references the function of Bodhisattvas as vehicles that transport beings to nirvana through skillful actions in the world. The role of the ship mirrors the role of the Bodhisattva.

The hazards of sea travel are important components of the *saṃsāra*-ocean allegory. They manifest as sea-monsters, tempests, doldrums, whirlpools, waves, reefs, rocks, starvation, fear, and doubt. Even the vastness of the ocean is a danger; those who cannot navigate the great, empty expanse are doomed to wander. These dangers represent the dangers of life, the ignorance, desire, and passions that trap beings in *saṃsāra*. In this well-developed metaphor, drowning at sea is equated with drowning in

³⁷⁴ Shaw 2012, 129.

³⁷⁵ Ohnuma 1998, 339.

³⁷⁶ Ohnuma 1998, 340.

saṃsāra, i.e. ignorance/delusion, one of the three poisons.³⁷⁷ We see this metaphor directly referenced in *Avadānasārasamuccaya* No. 2, the *Sārthvāha-jātaka*, in which the merchant captain (who is the Bodhisattva) decides to sacrifice himself to save his shipwrecked comrades. What makes this version unique (compared to those already mentioned above), is that his fellow merchants object, arguing that even if he saves them from drowning in the sea, there is no one to save them from “the whirlpool of evil deeds” in which they have been drowning since the beginning of time.³⁷⁸ The merchant captain expands on the metaphor of drowning, telling the merchants that by saving them from the physical ocean in this life, he will one day be able to “rescue this entire helpless world of beings who are sunk in the ocean of existence, which has delusion as its whirlpools, death as its sea monsters, pride as its stones, desire as its water, passion as its mud, and anger as its creeping serpents.”³⁷⁹

One must understand the temptations and dangers that fuel the cycle of *saṃsāra* to successfully navigate the ocean of being, just as one must understand how to avoid the physical dangers of the sea to complete a successful voyage. In the *Gaṇḍavyūha*, Vairocana uses this metaphor to explain his process of helping beings to escape *saṃsāra* and find enlightenment. He describes the importance of knowing the seasons when storms arise, as well as the locations of reefs, water spirits, monsters, and other hazards. He shows his passengers how to face the oceans of the mundane world, omniscience, craving, past,

³⁷⁷ Ohnuma 1998, 337.

³⁷⁸ Ohnuma 1998, 337.

³⁷⁹ Paraphrased by Ohnuma (1998, 337-8) from *Avadānasārasamuccaya*, (Handurukande 1984, 34–57).

present and future, how to annihilate the ocean of suffering and navigate the turbid ocean of the minds of all beings.³⁸⁰

Despite its dangers, merchants continued to sail the oceans, lured by the promise of great wealth. In South and Southeast Asian maritime folklore, the lands of gold (*suvarṇabhūmī*) and islands of gold (*suvarṇadvīpa*) are frequently the objectives of the voyage, with rumored and realized riches drawing the characters ever onwards. In Vaira's discourse, the treasure islands are the rewards of the spiritual journey.³⁸¹ However, in other tales, the treasure islands represent temptation. Stories of riches induce greed and inflame desire. The allegorical counterparts are the temptations of life. These include temptations (e.g. greed, pride, lust) that cause one to stray from the path. More importantly, they represent the attachment (desire), one of the three poisons which perpetuate suffering and the cycle of suffering.

The duplicitous lure and reward of maritime trade plays a central role in the saga of Pūrṇa (*Divyāvadāna* No. 2, the *Pūrṇa-avadāna*), which tells of his rise from son of a slave girl to merchant prince to king's favorite.³⁸² Pūrṇa was a great caravan leader. He made six daring ocean voyages and amassed great wealth. His brother Bhavila, feeling he should be able to emulate Pūrṇa's success, initiated his own trading voyage. His greed led him to try to harvest sandalwood from an island of demons. Outraged, the demons summoned a great hurricane. Bhavila's ship would have been lost had Pūrṇa not transported himself across the ocean and intervened. Pūrṇa's advice to his brother

³⁸⁰ Cleary 1993, 1262.

³⁸¹ Cleary 1993, 1262.

³⁸² Tatelman 2005, 20.

embodies the theme of risk and reward seen in many of the Buddhist legends: “The great ocean has few delights and many dangers. Blind with desire, many set sail; few return. You shouldn’t set sail in the great ocean for any reason.”³⁸³

Seas Stories at Borobudur

Sources

Borobudur is covered with hundreds of stories. It represents a unique Javanese effort to collect Buddhist scriptures, legends, and teachings and organize them into a coherent form that would endure the ages.³⁸⁴ In some ways, Borobudur is a physical manifestation of the traditional monastic process of collecting, translating, and organizing Buddhist texts. Gifford argues that Borobudur’s sculptors actively attempted to “constitute a new and coherent visual program” by selecting and juxtaposing various passages.³⁸⁵ Scholars do not know, however, how or why specific narratives were selected for the walls of the monument.

One possibility is that stories selected for Borobudur were already combined in pre-existing anthologies. Scholars hoped (and perhaps still hope) that a collection of Buddhist texts would be discovered one day that correspond exactly to the order and content of the *jātaka* and *avadāna* stories on Borobudur’s walls.³⁸⁶ The first 34 stories on the bottom row of the first balustrade (panels I.B.b.1 - 153) follow the same sequence as

³⁸³ Rotman 2008, 96.

³⁸⁴ Fontein 1981, 102.

³⁸⁵ Gifford 2011, 3.

³⁸⁶ Krom 1927, 232.

the *Jātakamāla* (Garland of Birth Stories), a collection compiled by the monk Āryaśūra in the fourth century C.E.³⁸⁷ This consilience, revealed by the Russian scholar S. d'Oldenburg, created a great deal of initial excitement, yet the pace of discovery has since slowed.³⁸⁸

Jātakas and *Avadānas* have been identified from other collections, such as the *Avadānaśataka* (Century of Noble Deeds) and *Divyāvadāna* (Divine Stories), but they do not follow the same sequences, and not all of the stories are depicted. Borobudur's first series of reliefs (I.a) depicts scenes from the *Lalitavistara* (The Unfolding of the Play), which tells legends from the life of the historical Buddha. The version at Borobudur has elements and nuances found in no known text.³⁸⁹ The second gallery main wall (II), third gallery (III and III.B) and fourth gallery balustrade (IV.B) depict scenes from the *Gaṇḍavyūha*, the saga of Sudhana's quest for enlightenment. Its content and pacing differ from the extant Chinese and Tibetan versions, and it was almost certainly based on some other lost source.³⁹⁰

Ships are depicted in stories associated with each of these collections. A river boat is depicted in a scene from the *Lalitavistara* (I.a.115). A single ocean-going vessel is depicted in Supāraka's story from the *Jātakamāla* (I.B.a.193). Three vessels are depicted in the legend of King Rudrāyana from the *Divyāvadāna* (I.b.82, I.b.86, and I.b.88). Two ships are depicted together in Maitrakanyaka's story from the

³⁸⁷ Āryaśūra 1895.

³⁸⁸ Krom 1927, 232.

³⁸⁹ Miksic 2010, 68.

³⁹⁰ Fontein 2010, 116–24.

Avadānaśataka (I.b.108). One ship is found on reliefs associated with another collection, the *Avadānakalpalatā* (No. 97). A unique single-masted outrigger is depicted in the reliefs from the *Gaṇḍavyūha* (II.41).

Unidentified Stories

Two ships (I.b.23 and I.b.53) are found in panels that have not been convincingly associated with a specific legend. This is not surprising, as many of Borobudur's reliefs remain unidentified. In some cases, the associations are tenuous or controversial.³⁹¹ The process of translating scripture into stone produced many panels that are difficult to interpret and identify. Borobudur's reliefs often depict events and individuals in a standardized way. Without knowing the rest of the story it is impossible to know who is present (this is particularly true for royal court scenes).³⁹² Buddhist legends frequently draw on popular motifs and well-known stories. For instance, in the story of Maitrakanyaka (*Avadānaśataka* No. 36, the *Maitrakanyaka-avadāna*), the hero advances through a series of careers, doubling his profits each time. It is a formulaic opening, and the same story appears (almost word for word) in other Buddhist tales.³⁹³ Scholars have to rely on distinctive details to identify a story (e.g. the presence of a musician, the central role of an animal, or a ship in distress).³⁹⁴

Difficulties with identification also arise from the sheer quantity and variety of Buddhist legends. There are hundreds upon hundreds of *Jātaka* and *Avadāna* stories

³⁹¹ For instance, the identification of I.b.53, discussed below.

³⁹² Krom 1927, 240.

³⁹³ Fontein 1981, 97.

³⁹⁴ Krom 1927, 240; Fontein 1981, 85.

alone, and they comprise only a small portion of sacred Buddhist literature.³⁹⁵ As stories were told and retold, transcribed, translated, redacted and recombined, numerous variations were created. Narratives were told in different ways in different collections. For instance, the story of Maitrakanyaka (described below) is known from at least five different collections.³⁹⁶ At the end of the version recorded in the *Avadānaśataka* (No. 36), Maitrakanyaka is liberated from suffering and reborn in the realm of the gods.³⁹⁷ At the end of the version in Pāli Canon (*Jātaka* No. 439), Maitrakanyaka is condemned to suffer eternal torment until another sinner takes his burden from him.³⁹⁸ These are drastically different conclusions. Often, the monks compiling the collections decided to retain multiple versions of the same tale, each emphasizing a different aspect of the story or different result.³⁹⁹

Beyond the diversity seen in Buddhist literature, the stories depicted at Borobudur often have narrative elements that are unique to the monument. While many legends are recognizable, they have twists and turns not found in known versions. These nuances complicate identification. The order of events in the narrative might have changed, new elements might have been included, while other elements might be missing. The discrepancies between known texts and stonework are important. Written texts represent a long process of collecting, reorganizing, editing, transcribing,

³⁹⁵ Theravada Buddhism traditionally recognizes 547 Jātakas, though multiple versions and translations exist.

³⁹⁶ Fontein 1981, 96.

³⁹⁷ Krom 1927, 193–205.

³⁹⁸ Cowell 1901, 4.

³⁹⁹ The story of the hare who sacrificed itself for the hungry Brahmin (the *Śaśa-jātaka*) appears at Borobudur three times, each with a completely different ending (Fontein 1981, 99).

commentating, and reinterpreting material. During this process, the texts were both deliberately and accidentally transformed by the copyists. Borobudur's reliefs, however, have remained unchanged. They provide a glimpse of Classical period Javanese Buddhism that is free from the filter of transcription.⁴⁰⁰ Fontein argues that Borobudur's reliefs have preserved not only the events of the original stories, but the very tenor of the texts. These differences can illuminate how Borobudur's sculptors approached the problem of "translating Buddhist literature into stone."⁴⁰¹

The Borobudur Vessel Narratives

The Buddha and the Ferryman (I.a.115)

Lalitavistara Ch. 26

Panel I.a.115 depicts a story in which the Buddha flies across the Ganges instead of paying a ferry toll (Fig. 59). The encounter between the Buddha and Ferryman occurs in the *Lalitavistara Sutra* (Ch. 26: *Turning of the Wheel of Dharma*) and is paralleled almost exactly in the *Mahāvastu* Vol. III. The *Lalitavistara Sutra* is a collection of stories from the Buddha's early life, culminating with his first sermon. *Lalitavistara* can be translated as "unfolding of the play" or the "play in full."⁴⁰² The title refers to a Mahāyāna Buddhist tradition that proposes the Buddha's historical incarnation was a measured public performance designed to elevate the consciousness of all beings. The text itself was a compilation of early stories, some of which date to the very first

⁴⁰⁰ Fontein 1981, 87.

⁴⁰¹ Fontein 1981, 87.

⁴⁰² Dharmachakra Translation Committee 2013, xii.



Fig. 59. Panel I.a.115 depicts the story of the river crossing. A riverboat is moored on the right bank. The Buddha stands defiant on the left, having flown across the river. The ferryman sits beneath the tree. His hand is pressed against his face, a sign of remorse for demanding a toll of the great being (from Anandajoti 2009h).

centuries of the Buddhist period.⁴⁰³ Appropriately, Borobudur's narrative reliefs begin with the *Lalitavistara*, much of which is depicted on the lower panels of the main wall in the first gallery (series I.a). Panel I.a.115 is found on the north end of the east wall.

The encounter between the Buddha and the Ferryman (I.a.115; Fig. 59) occurs in a series of reliefs depicting his travels. On his way from Śrāvastī to Benares (Vārāṇasī), the Buddha came to the shore of the Ganges. The great river was swollen to the top of its banks and flowing quickly. The Buddha sought a way to cross and asked a ferryman for passage. The ferryman demanded a toll, to which the Buddha responded “How can I have the fare for crossing when the shining metal means no more to me than a clod of earth and when I have dispensed with silver and gold?” The ferryman told the Buddha that without paying the toll, he could not cross. The Buddha was indignant, and replied, “The swan on the banks of the Narmadā does not ask leave of the ferryman, but crosses by its own abundant strength.”⁴⁰⁴ With that, he flew across the river and stood defiant upon the bank. In the version from the *Lalitavistara*, the ferryman deeply regrets refusing passage to such a “venerable man worthy of being served,” and promptly faints on the side of the river.⁴⁰⁵

Panel I.a.115 (Fig. 59) depicts the resolution of the event. The river Ganges is depicted with undulating waves populated by both fish and turtles.⁴⁰⁶ Along its banks are numerous small and long necked birds, as well as trees. Gautama Buddha stands on the

⁴⁰³ Dharmachakra Translation Committee 2013, xiii.

⁴⁰⁴ Jones 1956, sec. 328, 319–20.

⁴⁰⁵ Dharmachakra Translation Committee 2013, 350.

⁴⁰⁶ Mookerji (1957) notes that along with wavy lines, Indian sculptors used fishes, lotuses and aquatic plants to differentiate freshwater. While no plant life is clearly depicted in the water, the turtles are unique among the boat depictions.

far left of the Ganges. His back is to the great river, indicating that he has already crossed over. A small boat is moored to the far bank of the river. The ferryman is on a dock or landing. His hand is against his face, perhaps an indication of his remorse for slighting the great being. Another individual sits behind him, staring across the river at the Buddha. Two poorly dressed men with beards stand at the far right. One leans upon a walking stick. Perhaps they represent ascetics, who will now be permitted to cross without tolls. Perhaps they are simply witnesses to the great event.

In the *Lalitavistara*, the ashamed ferryman recounts his story to King Bimbisāra. Upon hearing the story of the miraculous event, Bimbisāra waived the ferry toll for monks from that day on.⁴⁰⁷ This extension of the encounter was likely included to explain the Indian tradition of providing monks and ascetics with free river passage. The *Manusmṛti*, an Indian code of laws written between the second century B.C.E. and second century C.E., includes a number of rules regarding river passage and proper tolls.⁴⁰⁸ *Manusmṛti* line 407 is pertinent to the story of the ferryman, as it states, “a woman who has been pregnant two months or more, an ascetic, a hermit in the forest, and Brahmans who are students of the Veda, shall not be made to pay toll at a ferry.”⁴⁰⁹

A similar story of the Buddha flying across the Ganges is found in the *Mahāparinibbāna Sutta* (No. 16, the Great Passing) in the *Dīghanikāya* (Vol. II). This event occurs in the final days of the Buddha’s life. He left the village where he had been

⁴⁰⁷ Dharmachakra Translation Committee 2013, 350.

⁴⁰⁸ These stipulations include the proper tolls for carts, men, women, and animals (ln. 404-5), proportionate fees for long passage (ln. 406), responsibility for damages (ln. 408) and negligence (ln. 409), (see Bühler 1969, sec. 8).

⁴⁰⁹ Bühler 1969, sec. 8, ln. 407.

preaching and went to cross the Ganges. The river, however, was at full flood. A host of villagers had followed him to the river to say farewell. Some of these people went looking for a boat to carry him across, while others made rafts.⁴¹⁰ Noting their efforts, the Buddha simply vanished from one side of the river and reappeared on the other and said, “When they want to cross the sea, the lake or pond | People make a bridge or raft – the wise have already crossed over.”⁴¹¹ In an interesting parallel in the *Alagaddupama Sutta* of the *Majjhima Nikāya*, the Buddha compares dharma to a raft that is no longer needed once one has crossed to the far shore.⁴¹² It is possible to interpret both of these river-crossing stories as physical manifestations of that metaphor.

The story of King Rudrāyaṇa (I.b.82, I.b.86, and I.b.88):

Divyāvadāna No. 37, the Rudrāyaṇa-avadāna

The tale of King Rudrāyaṇa is the 37th story in a collection of Buddhist legends known as the *Divyāvadāna* (Divine Stories or Heavenly Exploits), which is a collection of *avadāna* tales compiled as late as the eighth century C.E. The collection combined a number of extant works, some dating as early as the beginning of the Common Era.⁴¹³ The stories present substantial biographies of semi-mythical individuals who embodied the principles of Buddhist doctrine.⁴¹⁴ Significantly, seafaring plays a role in the first two stories of the *Divyāvadāna*, the *Kotikarna-avadāna* (No. 1), and the *Pūrṇa-avadāna* (No. 2). While these two stories are not depicted at Borobudur, the architects included the

⁴¹⁰ Walshe 2012, 238.

⁴¹¹ Walshe 2012, 239.

⁴¹² Ohnuma 1998, 339.

⁴¹³ Tatelman 2005, 18.

⁴¹⁴ Tatelman 2005, 15.

final two stories of the collection, the *Rudrāyaṇa-avadāna* (No. 37, panels I.b.64 to I.b.88) and the *Maitrakanyaka-avadāna* (No.38, panels I.b.106 to I.b.112). Both of these stories have seafaring elements. Between them, they account for 5 of the 11 depictions of watercraft, and two of the most important (I.b.86 and I.b.108).

The *Rudrāyaṇa-avadāna* begins with an exchange of gifts between two powerful rulers (I.b.64 to I.b.71).⁴¹⁵ Rudrāyaṇa, king of Roruka (Pakistan),⁴¹⁶ heard tales of a great kingdom in the east from a group of merchants who had traveled all the way from Rajagrha, in northeast India.⁴¹⁷ Rudrāyaṇa was eager to learn of Rajagrha's legendary king, Bimbisāra (558-491 B.C.E.).⁴¹⁸ Rudrāyaṇa initiated a political exchange by sending of a gift of jewels back with the merchants. The reciprocity escalated between the two kings until Rudrāyaṇa sent Bimbisāra a gift that could not be matched: a magnificent, magical cuirass (Fig. 60). Bimbisāra could not imagine a gift to equal it, and sought the counsel of the Buddha (of whom he was a patron). The Buddha created a painting of his own being, a colorful silhouette filled with verses and important teachings. This was the first *bhavacakka*, a symbol of *saṃsāra* designed to help common people understand the complexities of Buddhist teaching.⁴¹⁹ Bimbisāra sent the

⁴¹⁵ This story is paraphrased from the account provided by Krom (1927, 284-301) and may contain slight inaccuracies. There are only two partial English translations of the *Divyāvadāna*. *The Heavenly Exploits: Buddhist Biographies from the Divyāvadāna*, by Joel Tatelman (2005) includes stories 1, 2, 30, and 36. *Divine Stories: Divyāvadāna Part I*, by Andy Rotman (2008) includes stories 1 through 17. Unfortunately, neither provides a translation of the *Rudrāyaṇa-āvadāna* (No. 37) or the *Maitrakanyaka-avadāna* (No.38).

⁴¹⁶ Perhaps Rohri, in Sindh province, Pakistan.

⁴¹⁷ Rajgir, in the state of Bihar, India.

⁴¹⁸ Bimbisara was the ruler of the Magadha Empire, which included much of Bengal and northeastern India. Bimbisara is a very important figure in Buddhist tales.

⁴¹⁹ Bstan-'dzin-rgya-mtsho (Dahli Lama XIV) and Hopkins 1992, 42.

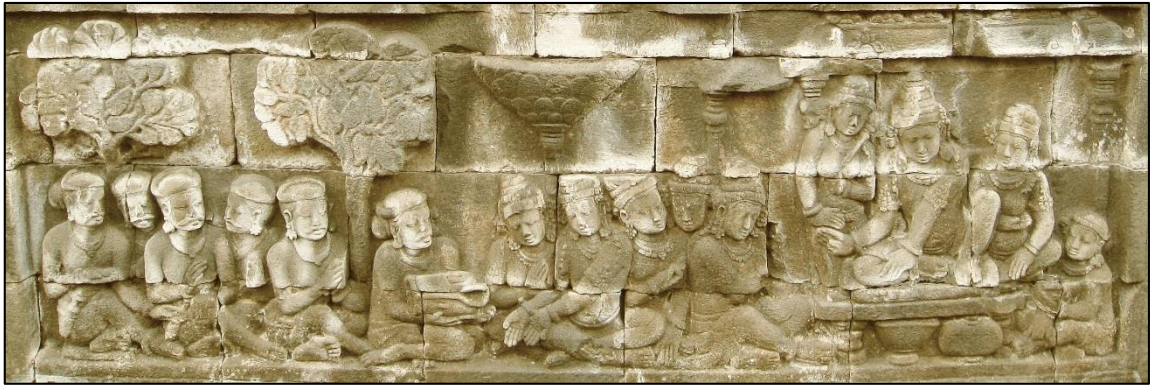


Fig. 60. Panel I.b.69 shows King Bimbisāra receiving the gift of the magical cuirass, held in the hands of the mustached figure (*center*). Bimbisāra (*right*) is overcome by the priceless gift (photograph from Anandajoti 2009d).



Fig. 61. Panel I.b.70 shows the Buddha's image arriving in Roruka. It is rolled up, and carried by an emissary riding on the back of an elephant (photograph after Anandajoti 2009d).

bhavacakka to Rudrāyaṇa, and dispatched a fast courier with a message explaining that he was sending the most precious thing in all the world, and that it should be given due honor.⁴²⁰ Rudrāyaṇa received the gift with royal honors (Fig. 61). This scene is portrayed in I.b.70. The *bhavacakka* is rolled up, carried by Bimbisāra's emissary atop the back of an elephant.

The *bhavacakka* inspired Rudrāyaṇa, and he became a student of Buddha's teachings. Eventually he obtained a high level, and the Buddha dispatched his great disciple Mahākātyāyana to further explain the dharma. Eventually, Rudrāyaṇa decided to abdicate his position as king, and the Buddha ordained him as a monk. He passed the kingship to his son Śikhaṇḍin, and appointed the wise ministers Hiru and Bhiksu to help him rule. Śikhaṇḍin, however, fell under the influence of a group of evil advisors. Through his corruption and cruelty, Śikhaṇḍin brought great suffering on Roruka. Rudrāyaṇa heard of the kingdom's troubles while begging as a monk. He decided that he must return to provide good council for his son. Fearing for their positions, the evil advisors convinced Śikhaṇḍin that Rudrāyaṇa was returning to cast him down. Terrified, he ordered his own father's death. Śikhaṇḍin then drove all the monks and nuns from the city, and had his followers bury Mahākātyāyana in sand.

Fortunately, the wise ministers Hiru and Bhiksu arrived in time to rescue the great teacher. Mahākātyāyana was furious at the king, and prophesied that for six days it would rain jewels upon Roruka, but on the seventh, the city would be annihilated by a sandstorm. Mahākātyāyana counselled Hiru and Bhiksu to fill a ship with jewels and sail

⁴²⁰ Krom 1927, 284-301

away (Fig. 62). As prophesized, Roruka was destroyed. The wise ministers sailed to new lands. With their new wealth and followers, Hiru founded the city of Hiruka (Fig. 63) and Bhiksu founded the city of Bhirukaccha (Fig. 64).

The three ships that are part of this saga are depicted near each other in the “b” series along the west end of the fourth wall of the first gallery. Panel Ib.82 depicts the rain of jewels. The artist has illustrated a variety of precious things falling from the overturned pots in the clouds, including necklaces, rings, and coins. These riches are being gathered up by a throng of poorly dressed, lower class individuals.⁴²¹ They are eagerly examining the treasures and stuffing them in sacks. The vessel in I.b.82 likely represents a small ship’s boat being laden with jewels before sailing back to the main vessel.⁴²² It is disproportionally small in comparison to the figures. It is overburdened with jewel sacks. It seems to have been beached, as there is no sign of water. One individual is loading the boat, though others in the scene may also belong to the ship’s compliment.

Scholars have associated I.b.86 with Hiru’s vessel, likely because his name is mentioned first in the narratives. The vessel is under full sail. It is heeled over in the wind with its canvas billowing. Some of the crew are tending to the rigging, while others seem to be involved in religious activities (Fig. 65). A group of figures (2 through 5) are conducting a ritual at the bow, likely to ensure a safe voyage.⁴²³ The forward most figure

⁴²¹ Krom 1927, 296.

⁴²² The size provides no indication of what kind of vessel it is. As Krom (1927, 296) rightly points out, “sculptor has merely put in a boat to be loaded with treasure and neglected all the other circumstances.”

⁴²³ Parallels are described by Hornell (1946, 275–86).

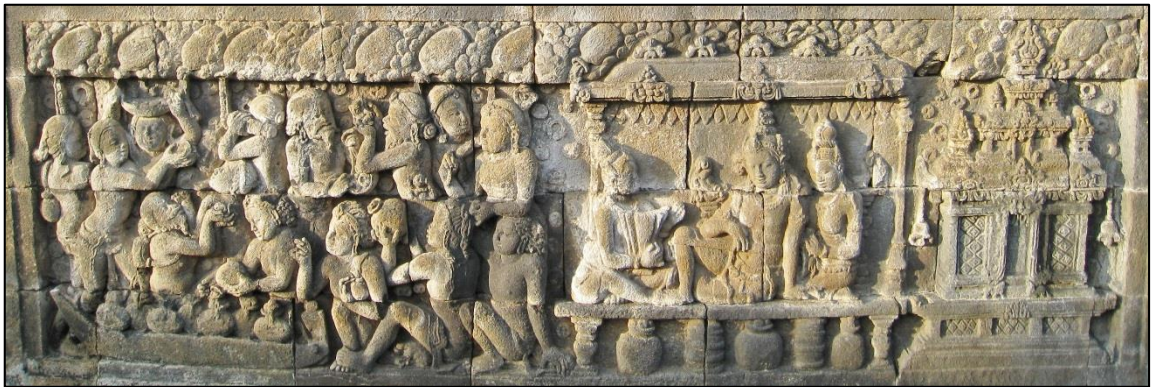


Fig. 62. Panel I.b.82 shows the jewel rain. Treasure pours from overturned pots (*top*). The poor gather up the rings, pendants, and jewelry (*center*). Some are loading a boat (*left and above*), perhaps crew of Hiru or Bhikṣu's vessel. King Śikhaṇḍin watches from his palace (Photographs after Anandajoti 2009d).

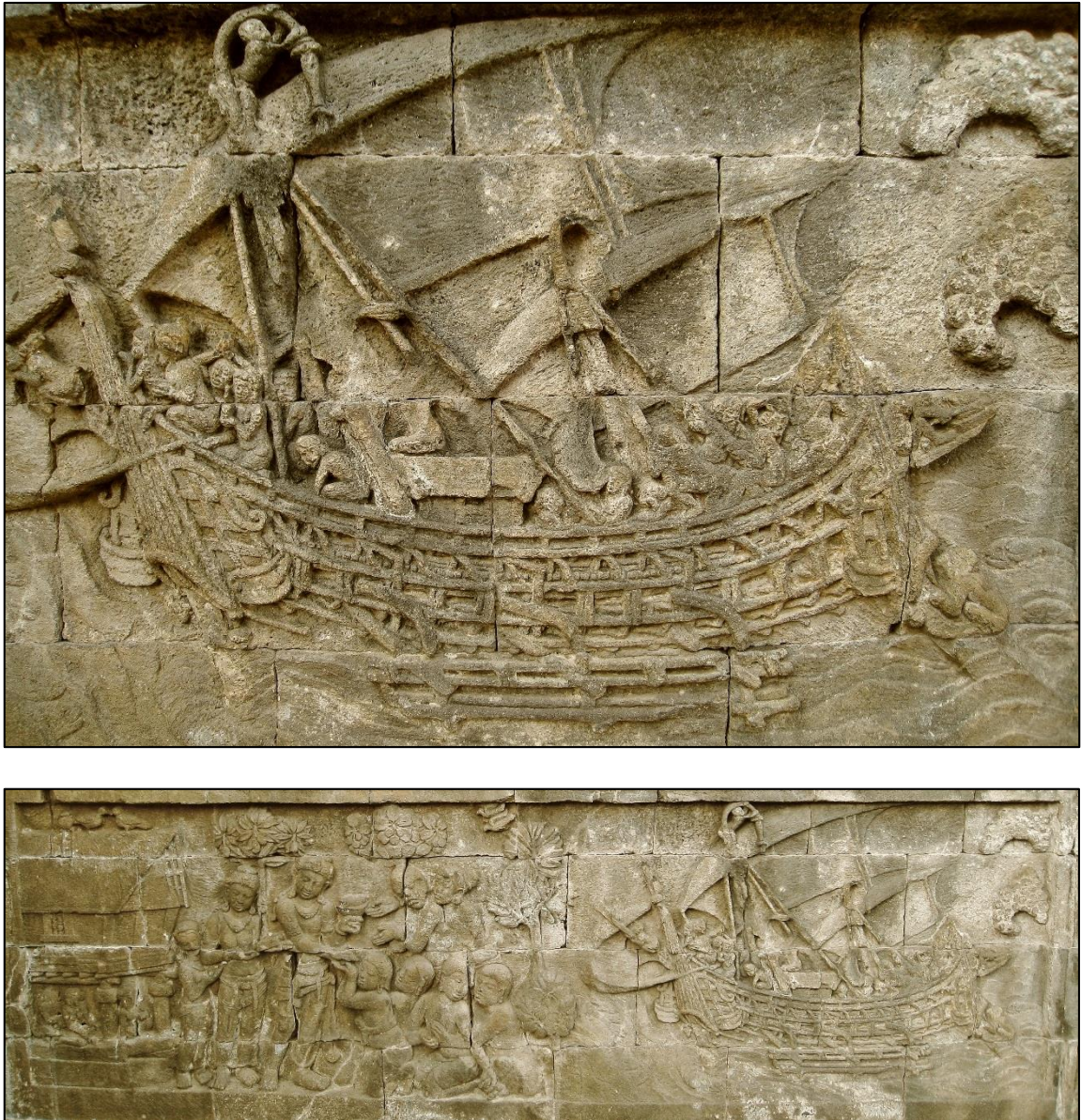


Fig. 63. Panel I.b.86 shows Hiru's vessel under sail (right and above). It is one of the great masterpieces of Buddhist artwork. Hiru sits in the stern (*far right*), directing the crew. At the bow, mariners conduct a ritual, perhaps ensuring a fortunate voyage. The left half of the panel shows the founding of Hiruka (Photographs after Anandajoti 2009d).



Fig. 64. Panel I.b.88 shows Bhiksu's vessel under sail (*right* and *above*). Clearly, it was not carved by the master who created I.b.86. The scene is flat and sterile. The panels are similar in composition, but I.b.88 is not a direct copy. The ship shows oars, which I.b.86 does not. The scene ashore is also much different (photograph after Anandajoti 2009d).

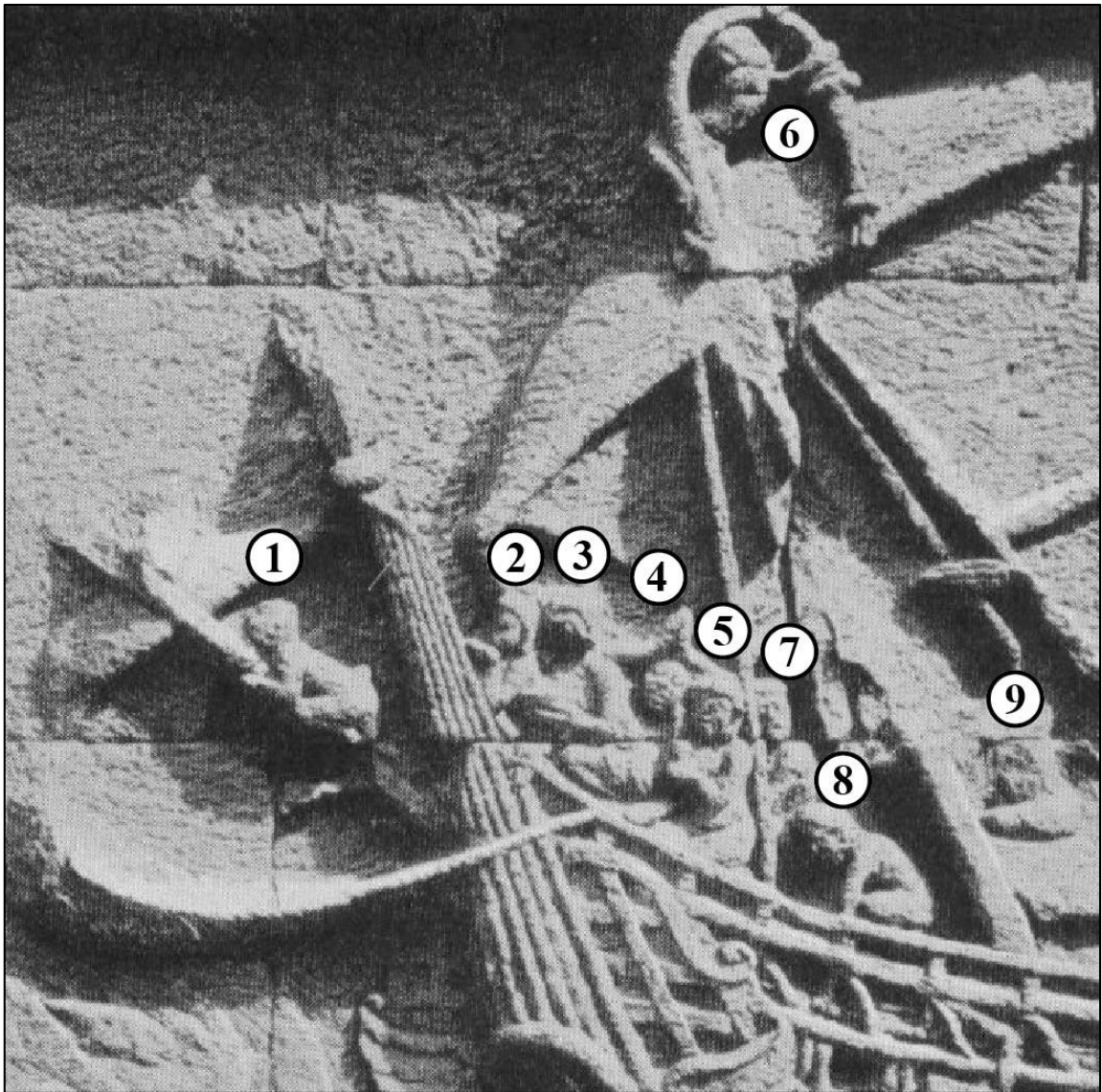


Fig. 65. The sailors in left half of panel I.b.86 (numbered left to right), (adapted from Van Erp 1923, 18, afb. 6).

of the group (2) seems to have his hands together and is facing the stem. A man with a beard (3) is directly behind. He is holding a bowl with his left hand and gesturing to the ocean with his right. A figure behind him (4) has his hands pressed devoutly together over his head. Figure 7 has been damaged, but may have been part of the group. Figure 8 is bowing down, but the action is enigmatic. Two figures are involved in acts of great daring and skill. One (1) has climbed out along the bowsprit. His chest is along the pole, with his arms and legs clenched around underneath. Perhaps he is going to fix the headsail. Another (6) is at the top of the main mast. He seems to be adjusting the curved top, but the only thing that is clear is that he is in a very precarious position. The central section of the bipod mainmast has been obliterated. There may have been a sailor climbing the rungs, but it is impossible to be sure. Figure 9 is sitting on the deckhouse, most of his body is gone.

A group of three figures (10 to 12) is positioned just aft of the deckhouse (Fig. 66). The central figure (11) was obliterated after Van Erp's time, as his face is visible in the old photos. This figure (11) seems to be touching the head of an individual (12) kneeling before them. The hands are so eroded it is impossible to be sure what figure 11 is doing, whether it is blessing the kneeling figure (12), anointing them, cutting his hair, or something else. It appears like another heavily eroded figure (10) is kneeling below the aft overhang of the deckhouse. His hands may be pressed together in respect. The head of a fourth figure (13) is visible further to the aft, but it is not clear whether or not he is part of this group, or the group of figures (14, 15, and 16) that are adjusting the sails.

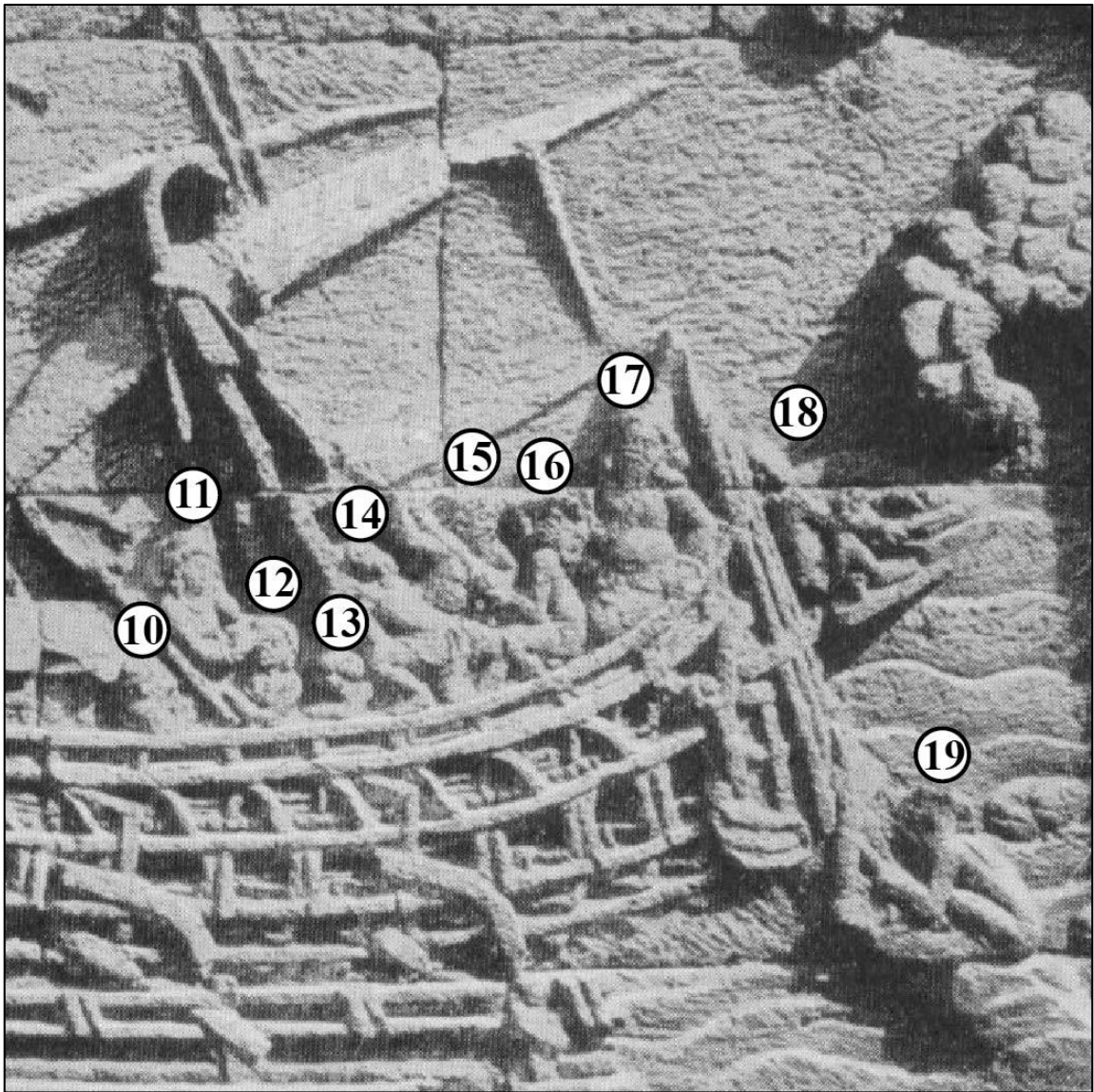


Fig. 66. The sailors in the right half of panel I.b.86 (numbered left to right), (adapted from Van Erp 1923, 18, afb. 6).

Figure 14 is squatting on the sheerstrake, and seems to be holding onto the port leg of the mizzen mast. A bearded sailor (15) is pulling down on what appears to be a stay looped over the top of the masthead. He may be in the process of switching it from starboard to port. His body is turned. With his right hand grabbing high and left arm crooked and grabbing low, he is bearing down with all of his might. He seems to have assistance of another, clean-shaven figure (16) who is staring at the masthead and shading his eyes. They are being watched by an official figure with a fat, round belly, elaborate hat, and a long beard. It is likely that this is Hiru, in the captain's seat. Two more mariners are at the very after end of the vessel. Figure 18 is sitting on the projection at the stern. He is holding something in his right hand which appears to be a stick, but it is very difficult to discern. In front of them is a square object, with three levels. Its nature and purpose remain a mystery. A daring mariner is in a comical position on the rudder. He has his knees drawn up, and has reached around the forward part of the blade with this right hand. It is probable that he is defecating or otherwise relieving himself. A similar scene is depicted on a seventh century B.C.E. ivory relief plaque originally from the Sanctuary of Artemis Orthia at Sparta. The relief shows a sailor squatting on the ram at the bow of the ship and clearly relieving himself.⁴²⁴

The scene aboard I.b.88 is similar in many ways (Fig. 67). The area around the bowsprit and stem has been extensively damaged. Clearly there is one sailor (1) standing by the forward/port brace of the mainsail yard. He may be adjusting it. Another figure may have been next to the stem, but it is impossible to tell. A seaman (2) is adjusting the

⁴²⁴ Spathari 1995, 79, fig. 87; Shelley Wachsmann, personal communication, May 1, 2014.

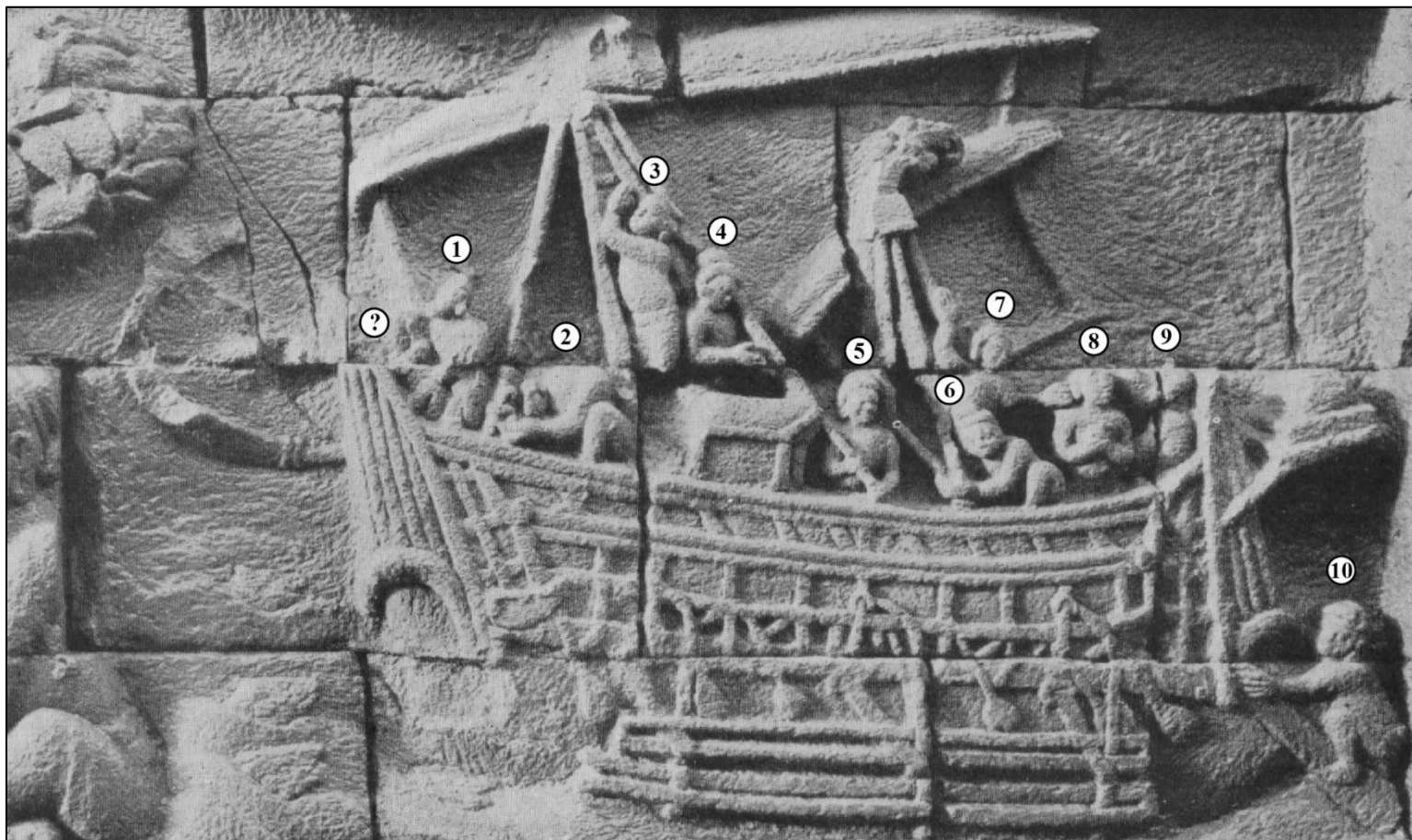


Fig. 67. The sailors in panel I.b.88 (numbered left to right), (adapted from Van Erp 1923, 22, afb. 7).

forward stay of the mainmast. He seems to be making a loop and securing the rope. A sailor (3) is climbing the rungs of the bipod mast above him. A group of two sailors (4 and 5) are adjusting the aft mainmast stay. Figure 6 is also repositioning the rigging, though he may be securing the forward/port brace of the mizzen yard.

Figures 7 and 8 seem to be interacting with the figure on the rudder (10). Figure 7 has his arms wide, perhaps in a greeting, or as a sign of surprise, joy, or praise. Figure 8 stands at the rail, with hands clenched together, watching the figure on the rudder. There seems to have been a figure (9) at the very stern next to the post, but his form is much eroded. The stern projection is the same, and the three-tiered square object is also present, but no one is sitting nearby. The final mariner (10) is in the same predicament as number 18 from I.b.86. One possibility is that the figure on the rudder was simply copied from I.b.86. However, the interaction between the figures on deck (7 and 8) and the fellow in the water seems significant. This may have been some well-known incident in a missing version of the *Rudrāyaṇa-avadāna*.⁴²⁵ Hornell argues that this is a convention, similar to the sailor working his way along the bowsprit. He suggests that the individual clinging to the rudder is the steersman, who would have access to the large rudders from below the poop deck, as seen on the large Malay *praus* of Macassar.⁴²⁶

⁴²⁵ My only suggestion is that this is a comic scene. One can imagine that the poor fellow missed the boat, and has only just been discovered clinging to the rudder.

⁴²⁶ Hornell 1946, 219.

The story of Maitrakanyaka (I.b.108)

Divyāvadāna No. 38, the Maitrakanyaka-avadāna,

Avadānaśataka No. 36, the Maitrakanyaka-avadāna

The tale of Maitrakanyaka is a classic call-of-the-sea story. It tells of how Maitrakanyaka's wanderlust delivers him to his karmic fate. The legend of Maitrakanyaka is known from at least five different texts.⁴²⁷ The version depicted at Borobudur (panels I.b.106 to 112) is closest to the *Maitrakanyaka-avadāna*, the 36th story in a collection of Buddhist legends known as the *Avadānaśataka* (Century of Noble Deeds) and the 38th and last story of the *Divyāvadāna* (Divine Stories).

Maitrakanyaka's father was a merchant. When Maitrakanyaka was still a child, his father perished at sea. Afraid that Maitrakanyaka would follow his father's path, his mother never told him his father's true profession. Maitrakanyaka was industrious, and went through several careers, excelling at each (Fig. 68, *right*).⁴²⁸ He doubled his profits each time, and ultimately donated them. When he finally discovered his father was a great merchant, he enlisted in a trading voyage. His mother begged him not to go, throwing herself at his feet (Fig. 68, *left*). Furious at her deceit and resistance, Maitrakanyaka kicked her in the head (perhaps fatally) and left, an act of ultimate disrespect.⁴²⁹

⁴²⁷ Fontein 1981, 96.

⁴²⁸ Maitrakanyaka moves from career to career, doing better in each. The progression is formulaic, and is found (almost word for word) in other Buddhist tales (Fontein 1981, 97).

⁴²⁹ Krom 1927, 193.



Fig. 68. The *right* half of panel I.b.107 shows Maitrakanyaka as a goldsmith. The left half of panel I.b.107 shows Maitrakanyaka departing for the ocean. His mother is prostrate at his feet, touching his leg. Her hair marks her as a widow.⁴³⁰ Maitrakanyaka's hand is raised – an act of defiance before the fateful kick (photograph from Anandajoti 2009b).

⁴³⁰ Krom 1927, 208.

Maitrakanyaka sailed with a merchant ship. While far from shore, a great sea monster attacked the vessel (Fig. 69, *right*). Maitrakanyaka escaped in a small boat and washed up on an island. There he met four beautiful *apsaras* (celestial maidens) and enjoyed their company for a time before his wanderlust drew him onward (Fig. 69, *left*).⁴³¹ Each subsequent place he visited, there were twice as many *apsaras* as before. Maitrakanyaka was never satisfied, and after lingering a while, he moved on. At last he came to an iron city; Maitrakanyaka entered, and the gate sealed shut behind him. There in the city he saw a man carrying a great iron wheel upon his head (Fig. 70, *right*). It was wreathed in flames, and as it turned it gashed his skull. The captive was forced to eat his own blood to survive.⁴³²

Maitrakanyaka asked the man who he was. The captive of the wheel responded, “A man who has ill-treated his mother.”⁴³³ Maitrakanyaka’s eyes then opened to his own wickedness. He took the wheel upon himself, and was immediately overwhelmed by unrelenting torment. The man told him that it was the fate of all those who disrespect their mothers to bear the wheel for 60,600 years. Yet in the midst of that crippling pain, Maitrakanyaka was overcome by compassion. He cried out, “I am willing to wear this wheel forever on my head for the sake of my fellow-creatures; may there never come

⁴³¹ Nou & Frédéric (1996, 248–9) describe the panels slightly differently, captioning them as: Ib 106: The story of Maitrakanyaka. He gives the money he has earned to his mother. Ib 107: Maitrakanyaka becomes a gold merchant and sets off on a voyage. Ib 108: He embarks on an ocean-going vessel to find his fortune and arrives in Rāmaṇaka. Ib 109: Maitrakanyaka arrives on another island.

⁴³² Krom 1927, 193-205.

⁴³³ Krom 1927, 193-205.



Fig. 69. The right half of panel I.b.108 shows Maitrakanyaka's ship in distress. A smaller vessel is headed for the safety of shore. The left half of panel I.b.108 shows four *apsaras* greeting Maitrakanyaka. He will enjoy their company for a time, before his wanderlust draws him on (photograph from Anandajoti 2009b).



Fig. 70. The right half of panel I.b.112 shows Maitrakanyaka and the man bearing the iron wheel. The gate of Ayomaya is depicted at left. It is guarded by a *rakshasa* (demon), showing that there can be no escape. The man at right bears the torturous iron wheel upon his head. The left half of panel I.b.112 shows Maitrakanyaka reincarnated as a god in Tuṣita Heaven (photograph from Anandajoti 2009b).

another who has committed such sin.”⁴³⁴ With this act of great compassion, the wheel lifted from his head. His body perished but Maitrakanyaka was reborn as a god in Tuṣita Heaven, the world where Bodhisattvas live before being reincarnated in human form (Fig. 70, *left*).⁴³⁵

Maitrakanyaka’s story expresses the inevitable laws of karma. The second half of the narrative mirrors the first. For his good works and donations, Maitrakanyaka is rewarded with the company of the *apsaras* doubling in number (4, 8, 16, and 32) just as he doubled the profits of his business ventures. However, as with the businesses, he is never satisfied, and his wanderlust draws him on. After receiving these rewards for his good works, he must likewise pay for his crimes against his mother, and is crushed beneath the wheel.

The corresponding story of Mittavindaka from the Pāli Canon is even darker. There are several versions with a similar theme (*Jātaka* Nos. 41, 82, 104, 369 and 439).⁴³⁶ The closest to the *Maitrakanyaka-avadāna* is *Jātaka* No. 439, the *Catu-dvāra-jātaka*.⁴³⁷ In this story, Mittavindaka was also the son of merchant. He was an unbeliever, but clever with money. He earned enough to engage in a trading venture, and decided to put to sea. As with the story of Maitrakanyaka, his mother begged him not to go, “because the sea is full of dangers.”⁴³⁸ Furious at her defiance, he struck her down and left.

⁴³⁴ Krom 1927, 193-205.

⁴³⁵ Krom 1927, 193-205.

⁴³⁶ For further elaboration, see Shaw 2012, 139–40.

⁴³⁷ Cowell 1901, 1–4.

⁴³⁸ Cowell 1901, 2.

While in the midst of the ocean crossing, Mittavindaka's ship was becalmed. The sailors cast lots to determine who was to blame for their misfortune, and all three lots fell to Mittavindaka. The crew set him adrift in the deep, and the wind instantly carried the ship away. Alone, Mittavindaka washed ashore on an island with four *apsaras*. The story then follows a familiar progression: Mittavindaka enjoyed their company for a time, then sailed off on his raft. He traveled from island to island, enjoying the pleasure of divine company, until he at least reached a walled city with four gates. Mittavindaka was blinded by illusions, and could not see that this was Hell. Upon entering he saw a man with a beautiful lotus upon his head. Although Mittavindaka was warned it was a razor-wheel, he could not see through the illusions, and demanded it for himself. In accordance with Mittavindaka's demand, the wheel leapt to his head, crushing his skull and rending him with razors, "like pestle crushing mustard seeds."⁴³⁹ In this legend, there is no relief for Mittavindaka. He is doomed to bear it for eternity for smiting his mother.

The passages about seafaring in the stories of Maitrakanyaka and Mittavindaka are relatively brief but informative. Mittavindaka's story gives us a glimpse of shipboard culture in ancient Asia. Sailors are renowned for being a superstitious lot, and it seems that it was no different in India and Southeast Asia. When Mittavindaka's ship is becalmed, the turn of bad wind is attributed to the poor karma of someone aboard. The identity of the individual is determined by a game of chance, and lots are cast. Mittavindaka draws the fatal lot three times, making his guilt undeniable.⁴⁴⁰ He is then

⁴³⁹ Cowell 1901, 3.

⁴⁴⁰ Cowell (1901, 2) points out that the event is similar to that from the book of Jonah.

set adrift in the sea, and the ship is immediately rewarded with a gust of wind and the superstition is confirmed.

The story carved on the walls of Borobudur is closest to *Avadānaśataka* No. 36, the *Maitrakanyaka-avadāna*. Panels I.b.106 and I.b.107 portray Maitrakanyaka's previous professions, for the most part absent in the *Mittavindaka-avadāna*. The ship depicted in I.b.108 is caught in violent weather (Fig. 69). Neither version of the story describes a storm. In Mittavindaka's tale, the opposite is true: his ship becomes becalmed in the vast ocean. In Maitrakanyaka's story, his ship is attacked and destroyed by a sea-monster. Krom and Van Erp both observed that the sea-monster is absent from I.b.108.⁴⁴¹ Krom suggests that the smaller vessel is putting *Maitrakanyaka/Mittavindaka* ashore, which is closer to him being cast off the ship in the Pāli tradition.⁴⁴² The conclusion of the story, however, leaves no doubt which version the sculptors followed. The right half of panel I.b.112 depicts Maitrakanyaka and the man with the razor wheel upon his head, trapped within the iron city. If the sculptors were following the Pāli version, the next scene would show *Mittavindaka* bearing the wheel for eternity. Instead, we know that Maitrakanyaka agreed to bear the wheel out of compassion for all beings, for we see him reborn in Tuṣita Heaven.

The absence of the sea monster is the only deviation from the *Avadānaśataka*. If we take a closer look at the very bottom of the panel, there is a sea creature with an open mouth just below the forward boom of the outrigger (Fig. 71). Perhaps this is the

⁴⁴¹ Krom 1927, 193-205; Van Erp 1923, 26.

⁴⁴² Cowell 1901, 2.

monster that has upset the ship! There are three humps carved behind its head that could represent the long, sinuous body of a sea serpent. I suspect that they are simply waves, but it is difficult to confirm, as the weathered carving is indistinct. Fish are numerous. There are at least two more beneath the outrigger, at least one behind the body dragging at the stern, and two next to the smaller vessel. It may be that the creature with an open mouth represents just another fish.

Three sea-monsters are depicted at Borobudur (in I.B.a.54, I.B.a.193, and II.41). All three are depicted with gaping jaws (Fig. 72). Similarly, the (potential) sea-serpent in I.b.108 has an open mouth. This separates it from the fish depicted elsewhere (I.b.23, I.b.88, I.b.108, I.B.a.54, and I.b.a.193, though there may be a small fish with an open mouth in II.41). If the creature is a sea-serpent, it is much smaller than the other sea-monsters. Perhaps this is because it was based on a different kind of creature, such as a sea snake, as opposed to a shark or crocodile. The size difference might have also been a byproduct of panel composition and the space taken up by the ship. It is important to note that if the sea-creature is indeed the monster that attacked Maitrakanyaka's ship, it does not play a prominent role in the composition of the panel. It was relegated to the bottom center of the panel, perhaps only threatening those that had fallen into the water. The artist chose to emphasize the storm and struggles aboard the ship instead of the serpent.



Fig. 71. The lower right section panel I.b.108 depicts a sea creature with an open mouth. Perhaps this is the monster that upset Maitrakanyaka's ship (photograph after Anandajoti 2009b).

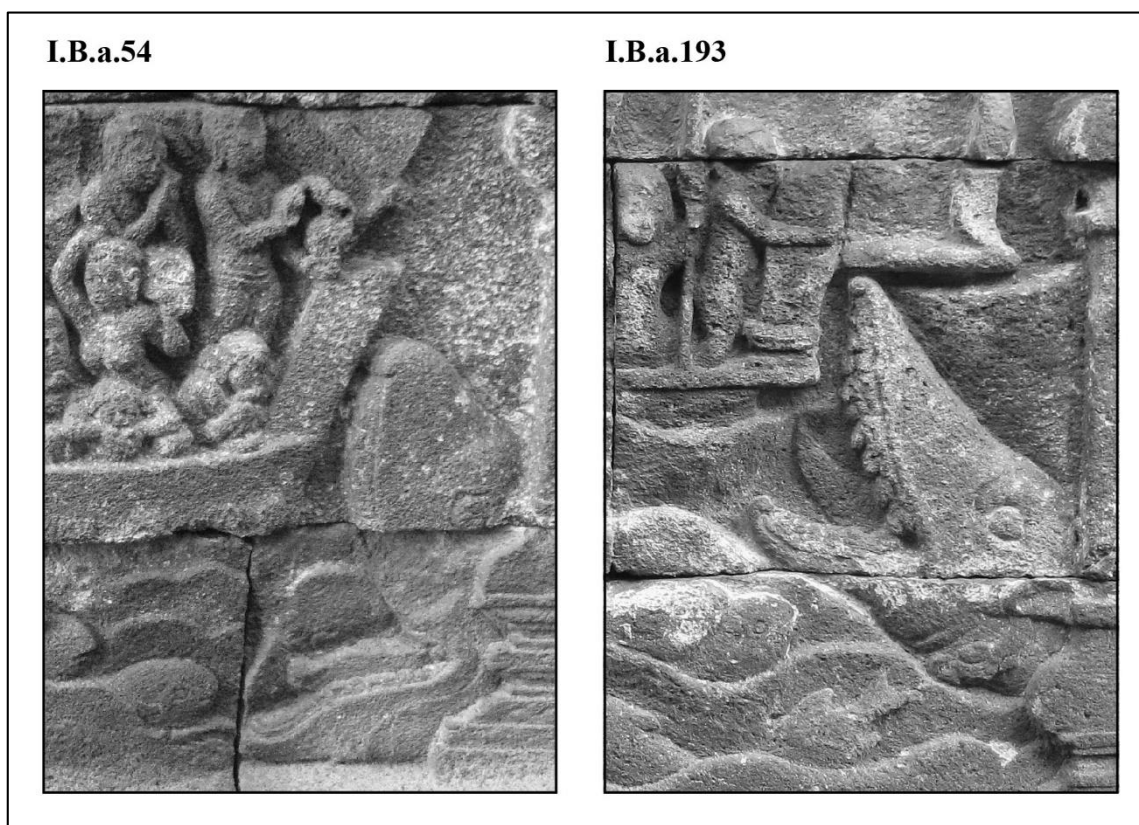


Fig. 72. Borobudur's artist depicted sea monsters in panels I.B.a.54 (*left*) and I.B.a.193 (*center*). In each panel, their mouths are gaping (adapted from Anandajoti 2009f).

The two vessels that are part of this story are both within panel 108 along the northern end of the east wall of the first gallery. I.b.108 depicts a ferocious wind. The ornamental tassels at the bow, stern, and mastheads are whipping forward at right angles, indicating that the gale is blowing violently from the stern. Several individuals have fallen overboard (Fig. 73; figures are numbered generally left to right). A sailor (18) clings to the outrigger, his body dragging limply beside the ship. Another (17) is lying with his back upon the floats, perhaps drowned, perhaps catching heaving breaths. Mookerji suggests that this is a depiction of crew members sitting on the outrigger to compensate for the heavy sail.⁴⁴³ Considering that the sailor is lying down and not sitting, and considering the second individual in the water is clinging to the outrigger, Mookerji's assessment seems unlikely in my view. Nowhere in the relief are figures depicted sitting on the outriggers.

The crew are struggling with the rigging. Eight, and possibly nine of the ten figures on the deck (6-16) of the large vessel are either heading aloft, working the sails or fighting with the rigging. One daring soul has shimmied his way out onto the bowsprit (6). This is not a simple display of courage, but a desperate attempt to bring the headsail under control, as the mass of yards, ropes and canvas has flipped sideways. He has grabbed one of the headsail braces. Eight or nine oarsmen are below, pushing on the sweeps. A smaller boat is sailing away (*left*). A central figure (2) extends his arm back to his companions aboard the main vessel. Is it a sign of farewell or a hand offered to a comrade? A gesture of helplessness or angst? A fat figure (5) clings to the sternpost,

⁴⁴³ Mookerji 1957, 33.

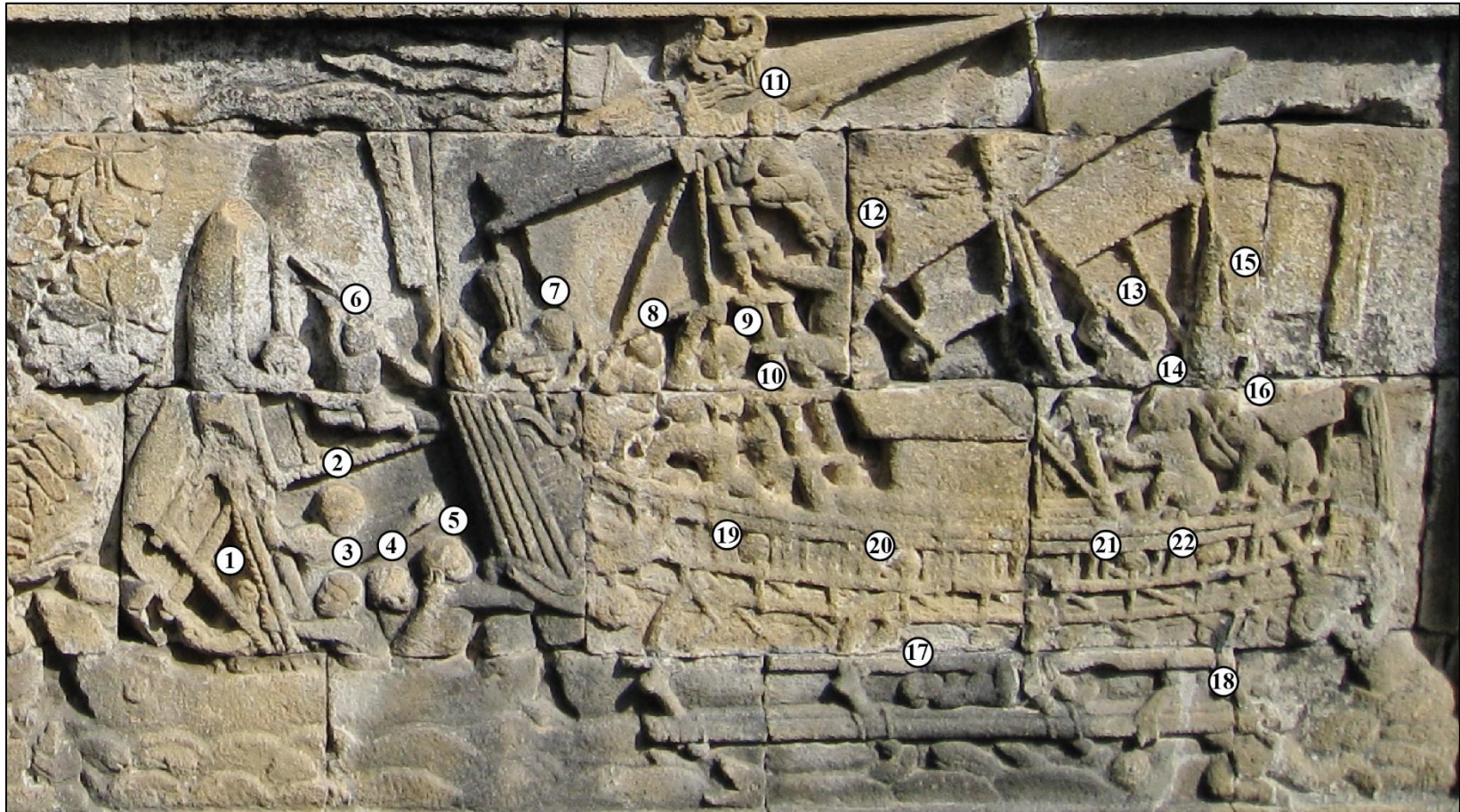


Fig. 73. The sailors in panel I.b.108 (numbered left to right), (adapted from Anandajoti 2009b).

while another sailor (4) looks over his shoulder; perhaps they are both watching the men in the water. Two others (1 and 3) are adjusting the ropes and trying to get the vessel under way. Jahan makes the unlikely suggestion that the two vessels in I.b.108 are colliding.⁴⁴⁴ Mookerji notes that smaller vessels were often tethered to the stern of larger vessels, in case they wrecked.⁴⁴⁵ Krom speculates that the small vessel might be the ship's boat.⁴⁴⁶ He also suggests that the small vessel might be putting Maitrakanyaka ashore, a variation of the event in *Jātaka* No. 439, in which Maitrakanyaka is cast adrift in a raft or small boat.⁴⁴⁷ Faxian's account of his travels provides an intriguing line of corroborating evidence. On his voyage to Java, he embarked on a large vessel carrying more than 200 men. The merchantman towed a smaller boat astern. It was attached by a rope and had its own crew. The tender was as a safeguard in case the merchantman suffered catastrophic damage. During the voyage, the large merchantman sprang a leak. The nervous merchants attempted to board the smaller vessel. The crew of the tender, however, were afraid that the little boat would be swamped by the influx of individuals, and cut the rope connecting the vessels.⁴⁴⁸ A similar scene may be playing out in panel I.b.108, with the small vessel sailing away in the moment of disaster. Perhaps the figure with the outstretched arm is giving order to cut the ropes and abandon the larger vessel.⁴⁴⁹

⁴⁴⁴ Jahan 2006, 82.

⁴⁴⁵ Mookerji 1957, 32.

⁴⁴⁶ He also suggested that the large vessel could be running down a smaller boat.

⁴⁴⁷ Cowell 1901, 2.

⁴⁴⁸ This, of course, panicked the merchants further and they began throwing everything overboard (Fa-hsien 1886, 111–3).

⁴⁴⁹ Fa-hsien 1886, 111.

The story of Suppāraka the Blind Navigator (I.B.a.54)

Jātaka No. 463, the Suppāraka-jātaka,

Jātakamala No. 14, the Supāraga-jātaka,

The story of Suppāraka is one of the great seafaring stories of Buddhist literature. It tells about how the blind navigator Suppāraka sails across the six oceans to the edge of the world, and by invoking the power of his merit, delivers his vessel from certain destruction. While the versions found in the Pāli Canon (*Jātaka* No. 463, the *Suppāraka-jātaka*) and the *Jātakamala* (No. 14, the *Supāraga-jātaka*) have several key differences, both contain important information about navigation, the dangers of seafaring, and shipboard religion. The story is depicted in panels I.B.a.53, 54, and 55 along the east end of the upper register of the south wall of the first gallery balustrade.⁴⁵⁰

In the *Suppāraka-jātaka* (*Jātaka* No. 463), the Bodhisattva was incarnated as Suppāraka, the son of a master mariner.⁴⁵¹ By age sixteen he mastered the signs of the sea and could plot a perfect course by the stars. He proved to be a wise and capable navigator, and no ship came to harm under his guidance. When he grew old, he retired from seafaring, as the salt spray had rendered him blind. Suppāraka lived in the great seaport of Bharukaccha, and his legendary skills were well known.⁴⁵² A group of merchants wishing to make the treacherous voyage to the lands of gold begged him to join their voyage (Fig. 74). Suppāraka refused, as he was old and blind. The merchants

⁴⁵⁰ Nou & Frédéric, (1996, 234–5) caption panels IBa 53 to IBa 55 as IBa 53: The story of the sailor Supāraga. IBa 54: The sea voyage and its dangers. IBa 55: On his safe return, Supāraga, now rich, gives thanks to the merchants.

⁴⁵¹ Cowell 1901, 86–90.

⁴⁵² Bharuch, in Gujarat on the west coast of India. (Cowell 1901, 87).



Fig. 74. The merchants from Bharukaccha beg Suppāraka to join their voyage (modified from Anandajoti 2009f).

were relentless, and eventually he conceded. The merchant ship sailed out from Bharukaccha into the great ocean. After seven days, a powerful storm arose, stirring the ocean into great waves. The fearsome wind took control of the ship and would not abate. The ship sailed across many oceans that the crew did not recognize. The mariners described each sea to Suppāraka by its color, waves, and sea life (e.g. “Lo! An ocean like a reed-bed, like a bamboo-grove we see!”), and he told them where they were (e.g. the Nalamāla Sea).⁴⁵³ Despite Suppāraka’s insistence they turn back, the crew could not bring the ship around. At last, they reached the edge of the Valabhāmukha Sea, where subterranean fire rises from the deepest abyss of the sea. No ship could return from that realm. The waves rose “on one side like a wall: a terrific roar is heard, which seems as it would burst the ear and break the heart.”

Suppāraka knew that only a miracle could save them. He shouted: “*Friends, bathe me speedily in scented water, and put new garments upon me, prepare a full bowl, and set me in front of the ship.*” Properly prepared, Suppāraka leapt to the bow. He used both hands to pour libations into the sea (Fig. 75) and performed *saccakiriyā*, an assertion of truth so powerful that it can transform reality.⁴⁵⁴ Suppāraka chanted: “So long as my memory serves me, since I reached the age of reason, I am not conscious of

⁴⁵³ Cowell 1901, 89.

⁴⁵⁴ *Saccakiriyā* is often translated as “Act of Truth.” In Indic religions, “Truth” held power over both the spiritual and physical realms. Invoking *saccakiriyā* involved making an oath where there was absolute congruity between words and fact (in the case of Suppāraka it was that he had never consciously harmed a living creature). The power of this utterance could then be used to manifest the speakers wish, in this case, delivering the ship back to shore (Kong 2012, 7–8).



Fig. 75. Suppāraka pours out libations at the bow of the ship and invokes his virtue in a magical “act of truth” (from Anandajoti 2009f).

ever having deliberately injured a single living creature. If these words be true (*sacca*), may the ship return in safety.”⁴⁵⁵ With those words, the ship leapt back across all six oceans in a single day. During the voyage, Suppāraka had secretly gathered up gold and silver, jewels, coral, and diamonds from the bottom of the oceans. He gave them to the grateful merchants (Fig. 76) saying, “This treasure is enough for you: voyage on the sea no more.”⁴⁵⁶

The story of Supāraka from the *Jātakamāla* (No. 14, the *Supāraka-jātaka*) is similar to the Pāli rendition. The differences are primarily in the details. In the *Jātakamāla*, Supāraka is not blind, but has failing vision. While Suppāraka’s *saccakiriyā* is powerful enough to transport the ship back across the ocean in *Jātaka* No. 439, Supāraka’s corresponding act of truth reverses the wind and seas. The crew joyously hoists the sails, and heads home. Supāraka commands them to fill the boat with sand and pebbles from the bottom of the sea (perhaps a reference to ballasting). By the time they returned home, the stones had turned into beryl, sapphires, silver and gold.⁴⁵⁷ The most important difference between the two versions is that the story from the *Jātakamāla* is longer, and provides vivid descriptions of the sea, storms, and navigator’s skills.

Without knowing the story of Suppāraka, it would be difficult to identify many aspects of the crowded ship depicted in I.B.a.54. Clearly the sea monster in the lower right-hand corner of the panel is the source of distress. However, without knowing the story, it would be impossible to know that the sea-monster represents the devouring

⁴⁵⁵ Kong 2012, 2.

⁴⁵⁶ Cowell 1901, 90.

⁴⁵⁷ Āryaśūra 1989, 102.



Fig. 76. Suppāraka gives the treasure from the voyage to the merchants, and commands them, “This treasure is enough for you: voyage on the sea no more” (modified from Anandajoti 2009f).

mouth of the ocean at the edge of the world. In the *Jātakamāla*, Supāraga cries out, “You have reached the point of no return – sailed right into the jaws of death – arrived at that fatal spot, the Mare’s Mouth.”⁴⁵⁸ At Borobudur, the artist chose to represent the “jaws of death” literally, as the gaping mouth of a sea monster.

The distress of the crew is clear. The artist has depicted the great gale in the upper left-hand corner, relentlessly blowing the ship towards its doom. The crew fight with the sail (Fig. 77). One sailor is standing on the yard (9), while three in the stern (1, 2, and 3) are hauling on the lines. Two of the figures sitting along the rail (12 and 16) have placed their faces in their hands in despair, perhaps sobbing. Another figure on the rail has one hand raised high, perhaps calling on the gods (10). A figure at the bow (7) has his hands pressed together in prayer. Some of the individuals aboard (5, 6, and 13) are holding rectangular objects (Fig. 78). It seems likely that these characters are jettisoning the cargo. One of these figures is a woman (6), infrequently shown aboard the Borobudur vessels. The events in the *Jātakamāla* provides an alternative, if doubtful, interpretation. After turning away from the edge of the sea, Supāraga commands the crew to bring up stones from the bottom of the ocean which turn into jewels and riches when the ship safely reaches shore (it is possible that the objects in the hands of the passengers represent these stones). While the raising of the stones occurred after the ship had started for home in the *Jātakamāla*, Borobudur’s artisans frequently layer sequences of chronological events into a single panel. However, the woman in the scene (6) has a

⁴⁵⁸ The name of the sea, Valabhāmukha, translates as mare’s mouth – reinforcing the imagery of jaws. It was an abyss in the ocean from which submarine fire issued forth (Āryaśūra 1989, 23).

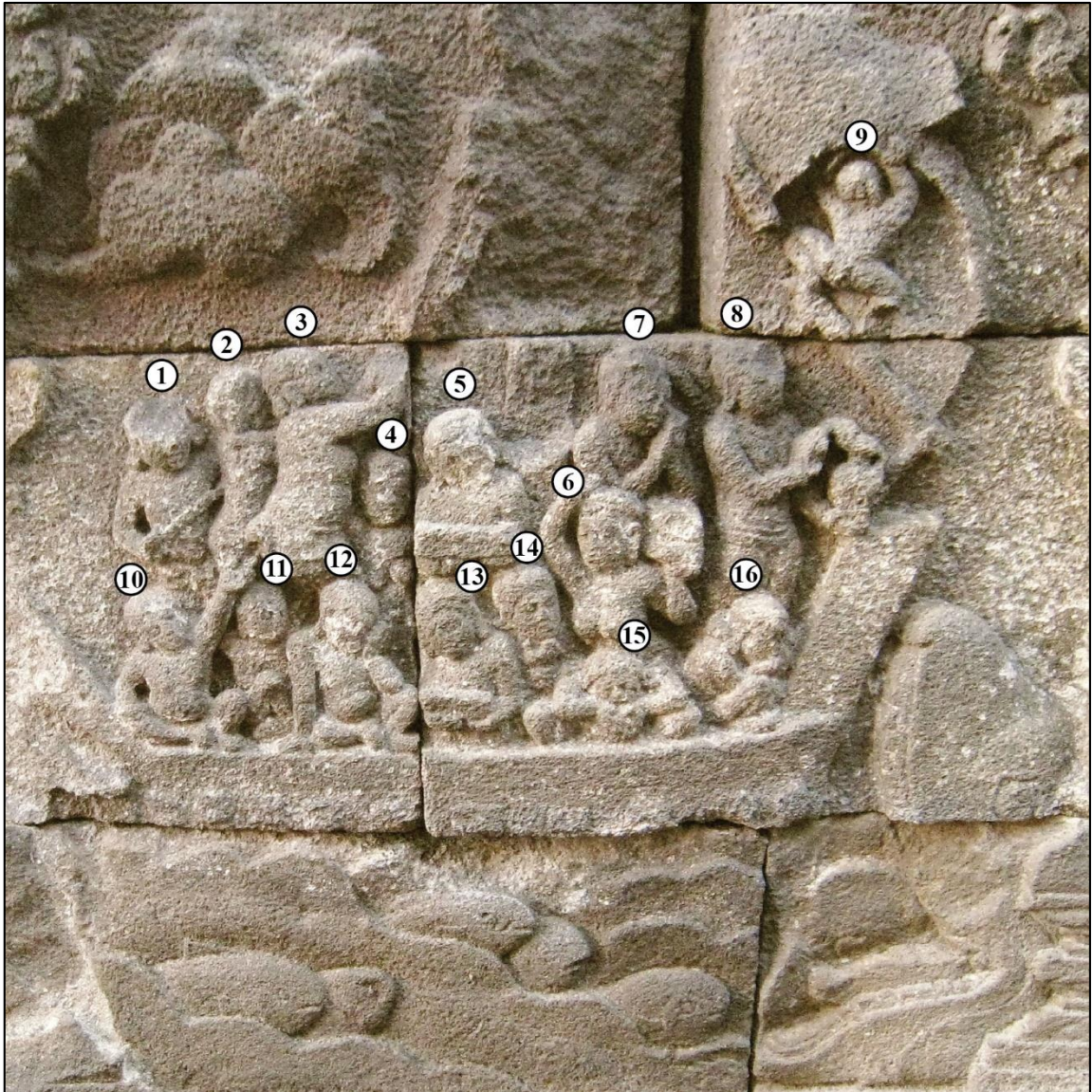


Fig. 77. The crew of I.B.a.54 (top row numbered first, left to right), (adapted from Anandajoti 2009f).



Fig. 78. Crew members (*center*) are holding mysterious rectangular objects. They might be jettisoning cargo or following Supāraga's command to pull up stones from the bottom of the ocean. Suppāraka (*right*) is pouring out libations with both hands while invoking the power of his *saccakiriyā* (adapted from Anandajoti 2009f).

bundle raised above her shoulder, as if she was going to heave it into the ocean. Faxian described a similar event in his travel account. When his vessel started taking on water in the midst of heavy wind and seas, the merchants jettisoned their bulky goods to prevent the boat from swamping.⁴⁵⁹

It is difficult to assess exactly how the crew are handling the rigging. One possibility is that the sail has gone wild, and the figure on the boom is trying to bring it under control. The three sailors at the stern are pulling on one of the ropes. They may be trying to maneuver the yard, but the rigging has been obliterated by damage. Another option, less likely, is that they are raising the sail. In the *Jātakamāla*, Supāraka's action reverses the wind and seas. They may be preparing to get under way and turn back from the jaws of the sea. The first seems more likely, and that the artist has chosen to portray these figures as going about their duties as was proper in the face of danger.

A man stands at the bow (8), pouring out libations. The Pāli text eliminates all questions of his identity and role: clearly this is Suppāraka himself. In *Jātaka* No. 439, Suppāraka cries out for clean vestments and a bowl of water before going to the bow and pouring out the libations with two hands (Fig. 78). The stonework matches the text exactly. This scene is perhaps the most dramatic moment captured in Borobudur's ship reliefs. There can be no doubt about the central conflict and underlying message. Suppāraka is standing bravely at the bow facing down the sea-monster. It is clear that it is not Suppāraka's great skill and navigational knowledge that saves the ship. It is his merit, and the power of his *saccakiriyā*.

⁴⁵⁹ Fa-hsien 1886, 112.

Turtle saves the Shipwrecked Merchants (I.B.a.193)

Avadānakalpalatā No. 97, the Kacchap-āvadāna

The *Kacchap-āvadāna* tells the story of how the Bodhisattva, incarnated as a turtle, saved a group of shipwrecked merchants. The story of the turtle appears in the *Avadānakalpalatā* (the former lives and good deeds of the Buddha), a collection by the Kashmiri poet, Kshemendra (990 – 1070 C.E.). The story only appears in this one text, which indicates Borobudur's artisans had access to some now-rare materials.⁴⁶⁰ Panels I.B.a.192 to I.B.a.195 (Fig. 79 - Fig. 82) tell of how a group of merchants found themselves shipwrecked and in danger. At that time, the bodhisattva was a giant turtle. He rescued the merchants from the sea and carried them to safety upon his back. While he slept, the starving merchants plotted to devour him. The bodhisattva awoke and offered up his flesh out of compassion for their need.⁴⁶¹

Vessel I.B.a.193 is located on the north end of the upper register of the west wall of the first gallery balustrade (Fig. 80). Panel I.B.a.193 depicts the ship in the storm. The sail has blown free and is at a wild angle. The helmsman (1) stands at the stern, the steering oar wrapped in his arms, trying to control the ship. A mariner (2) sits below; he has covered his face in terror. A figure (4) stands behind him holding onto the rigging, or possibly one leg of a bipod mast. The figure (4) is staring at a pitiable sailor who has

⁴⁶⁰ Miksic 2010, 52.

⁴⁶¹ Nou & Frédéric, (1996, 234–5) caption panels IBa 192 to IBa 195 as: IBa192: The story of the tortoise (the bodhisattva). IBa193: A monster attacks a sailing ship. IBa194: The great tortoise saves the shipwrecked passengers. IBa195: The tortoise preaches the law to those he has rescued.



Fig. 79. Panel 1.B.a.192 show the Buddha in a previous birth as a turtle in the great ocean (from Anandajoti 2009f).

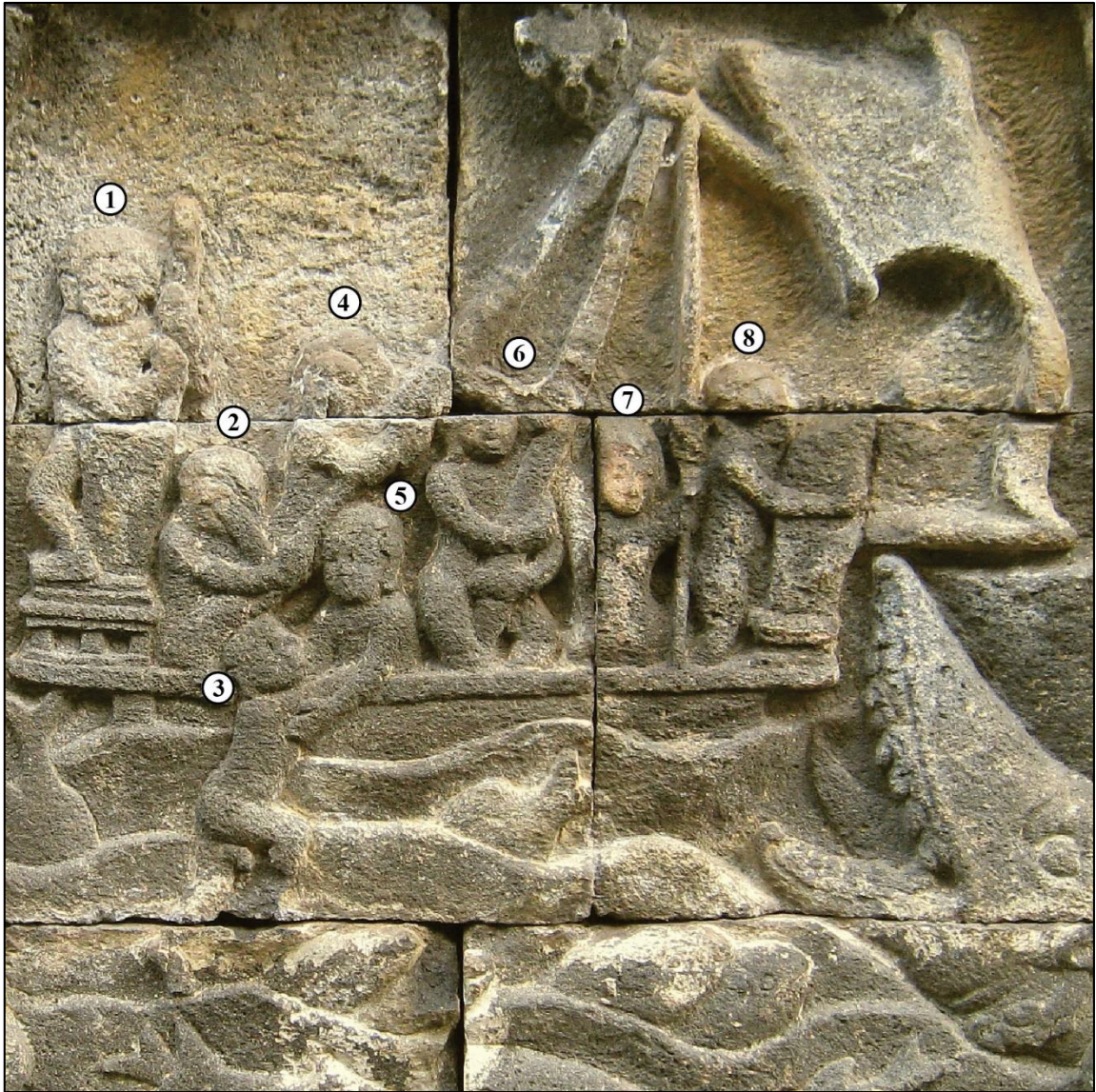


Fig. 80. Panel 1.B.a.193 depicts a ship of merchants attacked by a great fish in the sea (figures are numbered from left to right), (adapted from Anandajoti 2009f).



Fig. 81. Panel 1.B.a.194 shows the merchants clinging to the back of the giant turtle who has rescued them from the ocean (from Anandajoti 2009f).



Fig. 82. Panel 1.B.a.195 depicts the turtle offering up his body to the starving merchants (from Anandajoti 2009f).

fallen overboard (3). He is churning the water with his legs as the fish leap about. A seemingly bald figure (5) has grasped him by the arms, and is hauling him from the water. Two more figures stand amongst the rigging. One of these mariners (6) has both his arms and legs wrapped tightly around the mast. The second (7) has his right hand on the mast while his left clings to the forestay. At the bow, another figure (8) clings to the stem. These last three (6, 7, and 8) are staring at the horrible monster rising from the depths. Its head is pointed (like a *makara*) and its mouth is full of ragged teeth. Its tongue lashes forward in a horrific display.

The story of the turtle is very similar to a number of *Jātakas*, including the story of the five monks *Mahāvastu Vol. III, Pancakānaṃ Bhadravargikānāṃ Jātaka*⁴⁶² and the *Avadānasārasamuccaya* No. 2, the *Sārthvāha-Jātaka*. As told in the *Mahāvastu*, a merchant ship was attacked by a monster fish. Those merchants who did not drown began to swim. The merchant leader knew that they could not survive in the sea for long, and had no hope of crossing it. He also knew that the sea where this great fish lived would not tolerate a corpse floating in it, not even for one night, and would cast the body up on shore. He called to the other five merchants, “cling to me and I shall save you from the sea and set you in safety on dry land.”⁴⁶³ With that, he slit his throat. The sea cast his body up on dry land, and with it the five merchants.

The Buddha tells this story to explain how he was able to convert a group of five monks that followed another teacher. He had been the merchant leader in his past life,

⁴⁶² Jones 1956, 350–4.

⁴⁶³ Jones 1956, 351.

while the group of five monks were the merchants. The Buddha explains that he is able to deliver the group of five monks from the ocean of *saṃsāra*, just as he once delivered them from drowning in the sea.

Self-sacrifice is a common theme in Jātaka tales. They demonstrate the Bodhisattva's selfless nature. These stories are popular subjects in Buddhist art.⁴⁶⁴ Many take the form of a "gift-of-the-body." An example from Borobudur is the story of the hare that jumped into the fire to feed a hungry Brahmin (the *Śaśa-jātaka*). It is depicted in three different places at Borobudur, with three different endings.⁴⁶⁵

Sudhana's Quest for Enlightenment (II.41)

The Gaṇḍavyūha (Vaira, the 22nd Wise Master)

Panel II.41 depicts the ship of captain Vaira, Sudhana's twenty-second teacher from the *Gaṇḍavyūha*, the 39th chapter of the *Avataṃsaka Sūtra* (the Flower Ornament Sutra). Most of Borobudur's panels have been dedicated to depicting the encounters in this text, underscoring its importance. It occupies the second gallery main wall (II), third gallery (III and III.B) and fourth gallery balustrade (IV.B).

The *Gaṇḍavyūha* tells the story of Sudhana's quest for enlightenment. He visits 52 wise masters and 3 Bodhisattvas. To learn how to bring other beings to enlightenment, Sudhana seeks out the slave and ship captain Vaira, who has mastered the process (Fig. 83).⁴⁶⁶ Sudhana's journey takes him to the coastal metropolis of

⁴⁶⁴ Ohnuma 1998, 323.

⁴⁶⁵ Fontein 1981, 99.

⁴⁶⁶ Vaira is the 22nd wise master Sudhana visits.

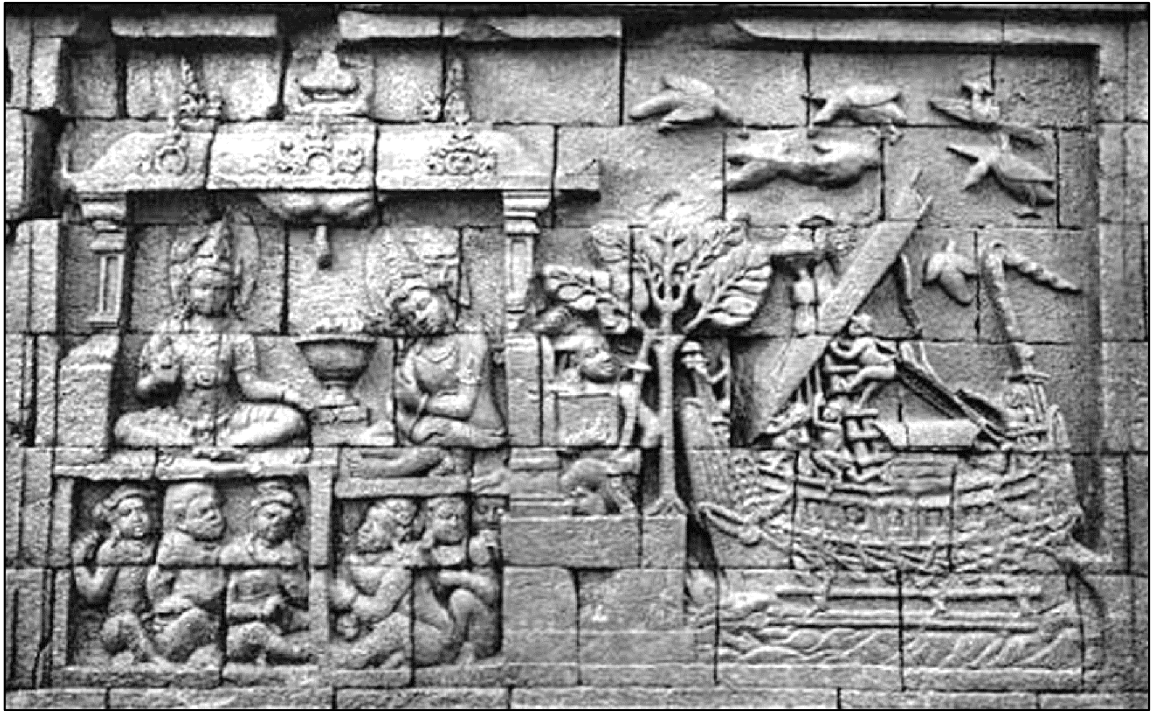


Fig. 83. Panel II.41 depicts Sudhana's visit to captain Vaira. Sudhana and Vaira sit together in a simple house at *left*. Vaira's ship is depicted at *right* (from Fontein 2012, 39, fig. 6).

Kutagara, the City of High Houses. Sudhana finds Vaira instructing a great host of merchants, as well as individuals from all walks of life. Vaira is an excellent pedagogue, and uses his seafaring experience to create metaphors that helped explain the virtues of the Buddhas.⁴⁶⁷ He embodies the compassionate desire to bring other beings to enlightenment. He serves those who are spiritually poor, takes care of their mundane needs, teaches them to accumulate virtue, inspires them to seek enlightenments, cultivates their compassion, and teaches them to care tirelessly for all living beings, and through this, brings them to the oceans of all Buddhas, and plunges them into the ocean of omniscience.⁴⁶⁸

In the passage, Vaira is likened to a ship. Through his instruction, he transports beings across the ocean of birth and death. In his notes on the *Gaṇḍavyūha*, Cleary draws a number of parallels between Vaira's description of seafaring and the metaphor of the ocean of *saṃsāra*.⁴⁶⁹ Vaira transports merchants to the treasure islands so that they may gather jewels and precious things, and then returns them home. Cleary suggests that this symbolizes the process of bringing beings through the ten stages of enlightenment, and then showing them how to return to the cycle of *saṃsāra* so they can perform compassionate acts in the world. Cleary equates Vaira's ability to navigate by the sun and stars with his understanding of the methods and guidelines of various Buddhist practices. According to Cleary, Vaira's ability to evaluate the soundness of the hull and rigging represents his ability to evaluate the mental and spiritual state of other

⁴⁶⁷ Cleary 1993, 1260–1.

⁴⁶⁸ Cleary 1993, 1261.

⁴⁶⁹ Cleary 1993, 1596–7.

beings. In this metaphor, whirlpools, depths, and shallows correspond to craving, grasping and becoming. Cleary suggests that the different colored waters represent the varied states of the mind.⁴⁷⁰ Vaira's seafaring metaphors are an important source of information about ancient navigation and maritime trade (discussed in full, below).

Panel II.41 depicts Sudhana's visit to captain Vaira. Sudhana and Vaira are seated on mats across from each other on the left side of the panel (Fig. 83). The social dynamic between a low born teacher (the slave Vaira) and high born student (Sudhana) is shown in the reliefs; Sudhana is only positioned just slightly lower than Vaira. It is important evidence of the strict protocol of honoring teachers.⁴⁷¹ A figure sits next to the tree that divides the panel. He is a servant or guard. He is clutching a book against his chest, and holding a sword by the base of its scabbard.⁴⁷²

The expertly carved ship in panel II.41 is the only vessel depicted on the second gallery wall. It is located on the west end of the southern side. The sweeps are out, and it is under its own power. The tassel at the stern is blowing aft, representing the wind blowing across the bow. The panel may depict the process of tacking (Fig. 84). A sailor stands high in the bow (1) with one hand on the stem. A missing fragment of stone has removed more than half of his body. It is difficult to discern what the figure is doing. Below the furled sail there is a seaman (2) adjusting one of the braces. We cannot see what he is doing with his hands, but he seems to be pulling both sides of the rope

⁴⁷⁰ Cleary 1993, 1596–7.

⁴⁷¹ Fontein 2012, 38, 159.

⁴⁷² The scabbard has diagonal lines on it. At first glimpse, I hoped it was a navigational device. However, similar scabbards appear in a number of panels (e.g. one is held by Siddhartha's servant Channa in I.a.67).

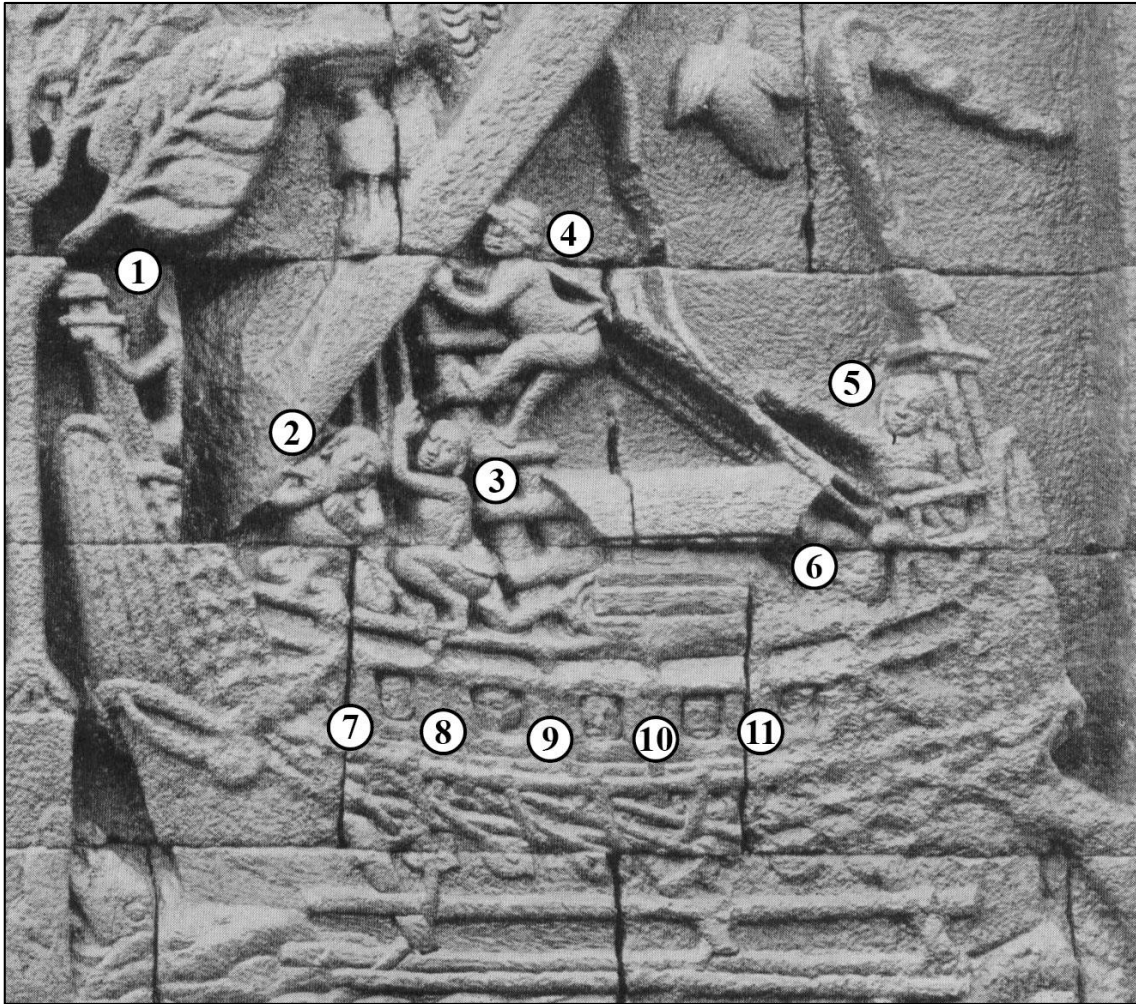


Fig. 84. Panel II.41 shows the mariners above deck (numbered 1-6) maneuvering the sail. The faces of the oarsmen (7-11) are visible below (adapted from Van Erp 1923, 28, afb. 10).

together. Another sailor (3) is kneeling nearby beneath the mast. He seems to be hauling on a halyard. He is watching the man at the brace (2), and is perhaps assisting in some way. Above him, a figure (4) is climbing up the rungs of the mast to the masthead, perhaps to deal with the yard. One of the braces has been let loose. Captain Vaira (5) sits high on the raised poop deck. He is pointing to the masthead, and probably giving instruction to the seaman climbing the mast (4). There may have been another figure near Vaira's feet, aft of the deckhouse. However, the panel is so eroded that it only allows for speculation. The faces of at least five oarsmen are visible below. There are eight oars swept aft, though there may have been more originally.

An Unidentified Story (I.b.23)

Panel I.b.23 is part of a series of reliefs (I.b.21 through 30) that have never been identified.⁴⁷³ The sequence may comprise several independent stories. It may also begin in prior panels, and continue to later panels, as the proceeding and following identifications are also uncertain. The story seems to revolve around a portrait of a young man (I.b.22) and a second portrait of a young woman (I.b.23). It may represent an arranged marriage, or a story in which the hero and heroine seek each other out through the use of these pictures.⁴⁷⁴ Panel I.b.22 shows the gift of a man's portrait (Fig. 85).

⁴⁷³ Nou & Frédéric, (*page numbers needed*) caption panels Ib 21 to Ib 30 as "Ib21: Start of a new story, as yet unidentified, Ib22: A prince and princess find each other... Ib23: Thanks to the presentation of a painted portrait. Sailors raise the sail on a large boat... Ib24: Unidentified... Ib25: The prince is seated in an enclosure to meditate alone. Ib26: The bodhisattva, sitting in the mountains, is joined by a goddess. Ib27: The goddess (?) offers flowers and incense at a sanctuary. Ib28: Not Identified, Ib29: Not Identified, Ib30: Not Identified."

⁴⁷⁴ Krom 1927, 240.



Fig. 85. Panel I.b.22 shows the presentation of a man's portrait. His identity is unknown, but its arrival seems to have been accompanied by a great procession, including elephants (from Anandajoti 2009i).



Fig. 86. Panel I.b.23 shows the presentation of the portrait of a beautiful woman. At left, a ship is preparing to sail (from Anandajoti 2009i).

His identity is unknown, but his arrival seems to have been accompanied by a great procession, including elephants. Panel I.b.23 shows the presentation of the portrait of a beautiful woman (Fig. 86). At the left, a ship is preparing to sail. If this is the next event in the sequence, perhaps it represents the hero departing to find the heroine. As the story is unknown, it is difficult to draw any conclusion about who is aboard the boat.

Vessel I.b.23 is located on the east end of the south wall of the first gallery. I.b.23 is one of the two single-masted vessels depicted at Borobudur. Unfortunately, the relief was never finished.⁴⁷⁵ The scene aboard is pleasant, and gives us a glimpse of routine shipboard life. The crew are raising the furled sail to the masthead. Six of the sailors (3, 4, 5, 9, 11 and 12) are heaving on the ropes (Fig. 87). They have grabbed high and are pulling down. The position of the fourth figure from the stern (4) confirms this motion. His knees are bent and he is squatting back as he heaves.

At the left, a bearded figure points aloft, directing the work (1). His gesture mirrors the figure seen in II.41 who likely represents captain Vaira (II.41, figure 5). The figure's distinct beard and the duplication of the pointing motif both suggest that he is the captain. It also suggests that the left end of the vessel is the stern, as he is in the captain's place where we see Hiru (I.b.86 #17) and Vaira. A figure (2) sits beside the captain. A line crosses in front of his leg; it may be some kind of railing. In the original Van Erp photos, we can see that he is holding on to a linear item that is slanted forward at a 45-degree angle. It is possible that this is part of the steering mechanism, making him the helmsman. However, it seems more likely that it is a continuation of the rope

⁴⁷⁵ The left side of the sail and the configuration at the stern were never carved.

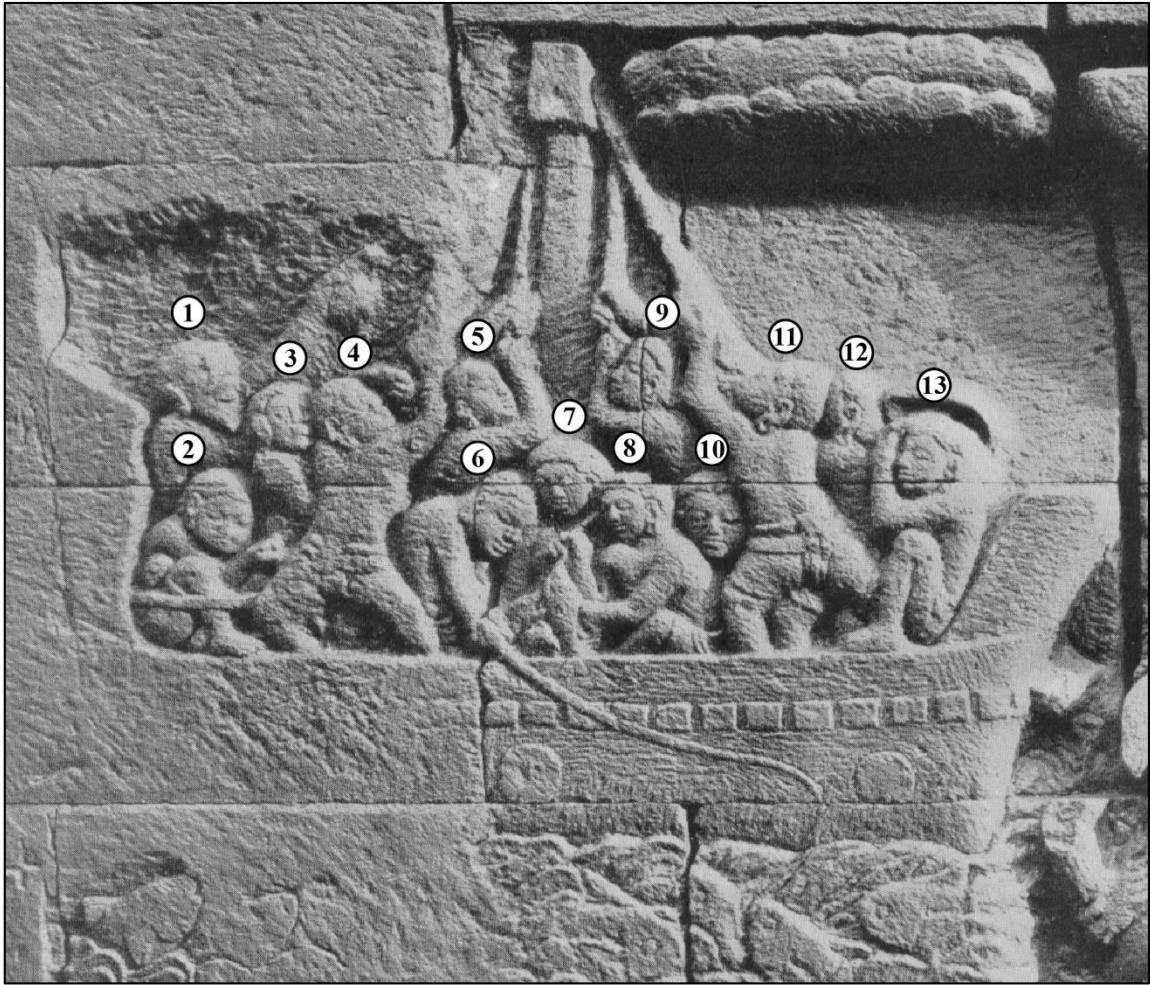


Fig. 87. Numbered figures in panel I.b.23. The densely-packed crew are busy on deck, with eight committed to raising the sail, and four fishing (center), (adapted from Van Erp 1923, 12, afb. 2).

that the two figures (3 and 4) ahead of him are pulling. Therefore, he might be squatting down to secure the line. A figure (13) sits at the other end of the vessel. There is an unidentified object over his head (perhaps an umbrella?). It is possible that he is the helmsman, and that a protrusion at the front of the ship is the remnant of a rudder. Without knowing more about the story, and without the other end of the ship being visible, his role cannot be conclusively determined.

Four figures (6, 7, 8, and 10) in the center of the relief are fishing in the abundant waters. The one on the left (6) has cast his line into the sea and hooked a mighty fish. His pole is bent with the struggle. The central two figures (7 and 8) are examining two smaller fish they have caught. The taller figure (7) seems to have a pole over his shoulder, and is holding a fish up with his right hand. Another figure (10) at the right looks over his shoulders. He is looking down and seems to be watching the battle between the fishermen and fish. It is interesting that more than half the crew (at least seven) are raising the sail, while four are fishing. Perhaps the artist wanted to capture the breadth of shipboard life all in one place, from the frenzy of shifting sails to more relaxed duties like fishing. Then again, perhaps the men in the center are simply loafers. Another possibility is that the men fishing and those working the rigging represent two different sailing shifts. This would be very interesting (and impossible to confirm), because there is scant information available concerning ancient shipboard organization.⁴⁷⁶

⁴⁷⁶ Indian Ocean vessels may have sailed with a series of three hour watches (Tibbetts 1981, 83).

An Unidentified Story (I.b.53)

Vessel Ib 53 is located on the southern end of the west wall of the first gallery. Like panel I.b.23, panel I.b.53 is part of a series of reliefs that have never been identified (I.b.51 through 55). The sequence represents either one or two stories. The right side of panel I.b.51 depicts a king, queen, and young prince. A group of craftsmen sit on the left (Fig. 88). They seem to be making small models of *kinnara/kinnari* (mythical creatures that have the bodies of birds and human faces). One craftsman is shaping a long piece of wood with an adze, while others seem to be working on the finer details. The king holds one in his hand, perhaps a gift for the child.⁴⁷⁷ Panel I.b.52 shows three scenes. On the right, a man with a sword and a woman with a flower are flying across the ocean. At the center, the couple is lying together in a structure in the wilderness. At the left, an ogre or a demon with a drawn sword is on guard⁴⁷⁸, or alternately, searching for the couple (Fig. 89).

We encounter a ship on the left side panel I.b.53 (Fig. 90). The crew are setting sail. On the right, a group of seven merchants or sailors have gone ashore. A beautiful woman greets them at the edge of the water. In panel I.b.54, we see a great house full of people (Fig. 91). A feast is going on in the lower levels. The figures are reveling, drinking, collapsed on the floor, and causing all kinds of ruckus. The couple from I.b.52 is visible on the second floor. Two figures sit to either side of the house; one

⁴⁷⁷ Krom 1927, 228, 242.

⁴⁷⁸ Krom 1927, 243.



Fig. 88. The left half of panel I.b51 depicts craftsmen carving toy *kinnaras* (photograph after Anandajoti 2009c).



Fig. 89. Panel I.b.52 shows a man and a woman flying over the ocean (*right*) and lying together in the wilderness (*center*). An ogre or a demon with a sword seems to be searching outside (photograph from Anandajoti 2009c).



Fig. 90. Panel I.b.53 depicts a boat getting under way (*left and above*), and a beautiful woman greeting a group of seven merchants or sailors who have gone ashore (*right*) (Photographs after Anandajoti 2009c).



Fig. 91. Panel I.b.54 show as great house full of feasting people (*right*), and the beautiful woman, sitting in a separate house with her attendants (*left*) (photograph from Anandajoti 2009c).



Fig. 92. Panel I.b.55 depicts a court scene, with a queen and king receiving gifts (*right*). The other figures may be the merchants shown earlier (*left*) (photograph after Anandajoti 2009c).

appears to be a monk with a shaven head, the other is a merchant or commoner. The beautiful woman is sitting in a house on the left side of the panel. She has a sorrowful look on her face, and is speaking with her attendants. The scene on the right may represent a story that she is telling or being told.⁴⁷⁹ In the last panel, I.b.55, we see another court scene (Fig. 92). A king and queen sit on the right. The king seems to be talking to two figures who are presenting gifts. His hand is on his breast, perhaps a sign of thanks. A group of ten figures is at the left; their identity is unknown, but perhaps some are the merchants in I.b.53.

There is no sign of shipwreck or impending danger in I.b.53 (Fig. 93). The crew of I.b.53 seem to be setting sail in a good wind (symbolized by the cloud in the upper left corner of the relief). The sails are partially unfurled and have begun billowing out. The steersman (1) sits at the stern with his right hand on the rudder and his left hand on his right arm. His face is damaged. He is sitting across from another sailor (2) who is wrapped in the rigging. This second figure is looking back out over the stern. In a convoluted position, he grasps the starboard backstay with his left hand and the port brace of the mizzen yard with his right. Like the steersman, his face is damaged. A third mariner (3) sits beneath the backstays of the mainmast. He is leaning forward, and seems to be smiling or talking. It is difficult to tell, but his left arm may be pointing forward; it is largely obscured by the starboard leg of the mast. He may be gesturing to the man in front of him (5) who is sitting with his knees drawn up and his face in his arms. Perhaps he is sad or simply resting. Above this pair of sailors (3 and 5), a sailor climbs aloft (4).

⁴⁷⁹ Krom 1927.

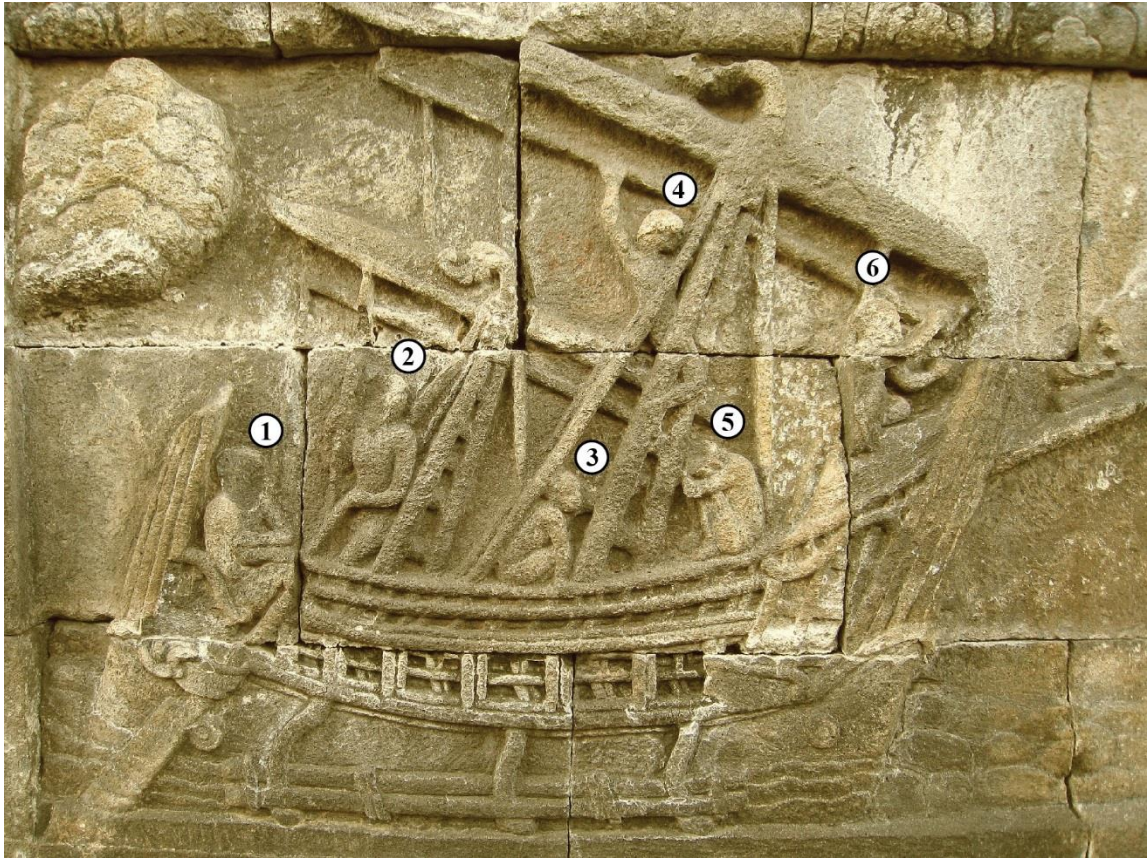


Fig. 93. Six figures (numbered 1-6) are visible aboard the vessel in Panel I.b.53 (adapted from Anandajoti 2009c).

He has one foot on the rungs of the bipod mast, and the other leg wrapped around the mast's starboard leg. His right hand is holding onto the mainsail boom. He is helping the sailor at the bow (6) to unfurl the mainsail. This last figure (6) seems to be squatting on some sort of superstructure in the bow. His right leg is bent up and the left is tucked behind it. His right hand is on top of the forward end of the boom, and his left hand is below. He seems to be unfurling the sail or otherwise setting the rigging in some fashion. Burningham notes that the process of furling and unfurling this type of sail was extremely difficult.⁴⁸⁰

The figures ashore are most likely seamen or merchants from the ship. It is possible that they have been shipwrecked. Considering that the artist chose to depict the calamitous events mentioned in the known legends of Maitrakanyaka (I.b.108), Suppāraka (I.B.a.54), and the turtle (I.B.a.193) without exception, it is unlikely they would pass over a shipwreck in this set of panels. It seems more likely, however, that the ship represents a tranquil sea voyage, and that the mariners landed of their own volition, whether it was an intended stop or accidental landfall.

Nou and Frédéric suggest that this sequence represents “the story of the flying horse” (*Jātaka* No. 196, the *Valāhassa-jātaka*).⁴⁸¹ In the popular tale, a group of five-hundred merchants were shipwrecked on the island of Sri Lanka near a village of *rākṣasī* (demons).⁴⁸² When the *rākṣasī* heard that survivors had come ashore, they magically

⁴⁸⁰ Burningham 2005, 12-3.

⁴⁸¹ Nou and Louis-Frédéric 1996, 240.

⁴⁸² The five-hundred merchants represent the five-hundred disciples of Gautama Buddha, while the demons represent the temptation of lust.

turned themselves into beautiful women and seduced the mariners. The *rākṣasī* performed this trickery every time there was a shipwreck. Each time new victims arrived, the *rākṣasī* bound their former lovers with magic chains and tossed them into a house of torment. Each night, while their new lovers slept, the *rākṣasī* would sneak out and feast upon the captives. In the story, the head merchant realizes the truth, and convinces half of his men to flee. They offer prayers to the Bodhisattva, who suddenly appears as a great white flying horse, and delivers them from danger.⁴⁸³

There are more than 20 known versions of the story.⁴⁸⁴ In one set of stories, including the *Valāhassa-jātaka*, the Bodhisattva was incarnated as the flying horse. In a second set of stories, the horse is an incarnation of Avalokiteśvara, (the embodiment of compassion), while the Buddha was incarnated as Simhala, the chief merchant. In these stories, he is the only one who escapes. He is pursued by a *rākṣasī* who tries to seduce him, pretends she is his wife, creates an illusionary child and eventually eats the royal family out of frustration. Simhala later becomes king and invades Sri Lanka, killing all *rākṣasī*.⁴⁸⁵ The Tibetan and Chinese versions give additional details about the voyage. In these versions, a sea monster attacks the vessel. Tatelman summarizes from the *Mūlasarvāstivādinaya*: “The helmsman warned the merchants of the perils of the ocean. They provided themselves with planks and inflatable leather sacks in order to be able to escape any shipwreck.”⁴⁸⁶ Schlingloff lists “pitchers, woolen sacks, goat-

⁴⁸³ Cowell 1901, 89–91.

⁴⁸⁴ Appleton 2006, 187.

⁴⁸⁵ Appleton 2006, 189–90.

⁴⁸⁶ Tatelman 2005, 421.

bladders, rafts made of gourd shells and boards of the silk-cotton tree” as other types of floatation devices which Merchants (in *Jātakas*) use to survive shipwrecks.⁴⁸⁷ The use of inflated hides as flotation devices is pictured on Stupa I at Sanchi, built in the first century B.C.E.⁴⁸⁸ Their use continued into the modern period.⁴⁸⁹ It is significant that this story describes the mariners securing flotation devices as an anticipatory action.

In addition to being a popular subject in folklore, the story of the flying horse is frequently depicted in Buddhist maritime iconography. Scenes from stories in the genre appear on panels of a Mathura railing pillar (second or third century C.E.), panels of the Anada Temple in Pagan, Burma (eleventh century C.E.), as well as in numerous contexts throughout India, Central Asia, Southeast Asia, China and Japan.⁴⁹⁰ Nou and Frédéric label panels I.b.53 and I.b.54 as scenes from the *Valāhassa-jātaka*.⁴⁹¹ I.b.53 depicts the ship and the disembarked sailors being greeted by a beautiful woman. It is possible that this scene represents the shipwrecked merchants arriving on the shores of Sri Lanka, where they were greeted by *rākṣasī* disguised as women. I.b.54 depicts a large house with feasting. This would correspond to the *rākṣasī* feasting on their captives in the house of torment.

The attribution of I.b.53 to the *Valāhassa-jātaka* is questionable at best. The flying horse, the key component of the story, is never depicted. There is no scene depicting a shipwreck or the rescue of the seamen at all. More importantly, the

⁴⁸⁷ Schlingloff 1988, 196.

⁴⁸⁸ Deloche 1994, 133.

⁴⁸⁹ Hornell 1946, 22–5.

⁴⁹⁰ Meech-Pekarik 1981, 111–2.

⁴⁹¹ Nou and Louis-Frédéric 1996, 240.

attribution ignores the context of the surrounding panels. The two individuals who fly through the air and lie together in I.b.52 are almost certainly pictured again in the feasting scene, I.b.54. Clearly they are central figures in the story. There are no similar characters in the *Valāhassa-jātaka*.

Seamen and Shipwrecks

The Terrible Sea

The sea has many dangers, including hidden rocks and reefs, remorseless pirates, massive waves, whirlpools that devour ships, storms that split the timbers, sea monsters that rise from the depths, currents that are unpredictable, winds that never stop, and winds that never rise. It is a vast and featureless expanse where it is easy to lose your way. Buddhist sea stories vividly depict these horrors. They describe the changing colors of the waves and the texture of churned foam in a storm. They describe the horrible creaks and noises of the ship, and the thunder of the swell. They portray very human sailors, in all states of emotion, from courage to terror, and from nervous agitation to paralysis. The authenticity of these descriptions is likely a product of Buddhism's intimate connections with ocean trade, seafarers, and maritime communities, as well as the ability of the Buddhist community to adapt existing folklore to its spiritual doctrines.

The juxtaposition of tales of Maitrakanyaka (*Avadānaśataka* No. 36, the *Maitrakanyaka-avadāna*) and Mittavindaka (*Jātaka* No. 439, the *Catu-dvāra-jātaka*) provides insight into how ancient mariners perceived the perils of the ocean. In both versions, great risk is associated with seafaring. Maitrakanyaka's father perished during

an ocean crossing, foreshadowing Maitrakanyaka's own trials. In Mittavindaka's story, his mother begs him not to undertake a voyage "because the sea is full of dangers." It is interesting, however, that the two versions contain different hazards. Maitrakanyaka's ship is upset by a terrible sea monster, and he survives by clinging to a bit of wreckage or a raft. In Mittavindaka's story, the danger comes as a spell of poor wind. It is easy to overlook that becoming becalmed was just as dangerous as being caught in a storm. If becalmed for a long period, a ship could run out of water and food. Alternately, if close to shore, the vessel could be caught by a current and drift onto reefs and rocks, with no ability to avoid them. It is of even greater interest that Borobudur's sculptors, in depicting the tale, did not portray either of these dangers. Instead, the artists carved a tempest.

Maritime disasters occur in three panels (I.b108, I.B.a.54, and I.B.a.193). Storms and sea-monsters are present in panels I.B.a.54 and I.B.a.193. The seas are teeming with hungry fish, and giant monsters are rising up with jaws wide and full of teeth. The creature in I.B.a.54 has peg-like teeth and a rounded head, perhaps most akin to a whale (Fig. 94). The creature in I.B.a.193 has much more crocodilian features, with a pointed nose and sharp teeth. It also has signs of gills and scales. They may be *makaras*, chimeric monsters of the Ganges in Indian legends. *Makaras* are frequently depicted with a crocodile's head, elephant's trunk, the scaled body of a fish and a fanciful tail (Fig. 95). A bulbous-headed creature similar to that in I.B.a.54 is lurking at the bow of the vessel in II.41. Its mouth is open, but is turned away from the ship, and seems to be just a harmless denizen of the sea. A small sea creature with a gaping jaw is depicted in

I.B.a.54



I.B.a.193



Fig. 94. Sea-monsters in panels I.B.a.54 and I.B.a.193 (adapted from Anandajoti 2009f).



Fig. 95. A *makara* guards one of the entrances at Borobudur. It has a lion in its mouth (from Miksic 2010, 48).

I.b.108 beneath the large vessel's the outrigger. It might have the long sinuous body of a sea snake, though the humps trailing behind it are most likely waves. It is probably one of the numerous fish.

As well as sea monsters, Panels I.b.108, I.B.a.54, and I.B.a.193 show signs of storms. Sailors have fallen into the choppy sea in panels I.b.108, where two are likely drowned, and I.B.a.193, where the lucky mariner is being pulled from the sea. Billowing clouds arise from the left-hand side of I.B.a.54. The pennants of the large vessel in I.b.108 are whipping forward, and the sails have blown free in both I.B.a.54 and I.B.a.193. Seamen aboard both vessels in I.b.108 and Suppāraka's ship in I.B.a.54 are fighting with the rigging and sails. The legend of Suppāraka (*Jātaka* No. 643) recounts just such a storm:

"...the sea took a terrible aspect. A violent gale arose, causing a fearful noise of the waters, lashing their surface so that they were covered with foam scattered by the breaking billows. The whole sea was brought in commotion up from its very bottom. | Shaken by the hurricane, the immense masses of water were stirred up and rolled with formidable rapidity. The Ocean assumed a dreadful appearance, like that of Earth quivering with her mountains at the time of a world-destruction. | Like many-headed hissing serpents, clouds of a bluish-black colour with their

*flame-tongues of lightnings obstructed the path of the sun, and without interruption produced the terrible noise of their thunder.*⁴⁹²

The *Jātakas* and *Avadānas* portray the sea as all powerful. There is no way to control the winds. In Mittavindaka's story, his ship is becalmed. The currents could easily bring the ship on the rocks, and the seamen would have been helpless to act. In the story of Suppāraka, his vessel is blown across six oceans by a relentless gale. Despite his skill and prowess as a navigator, his crew is helpless in the face of the storm. We see Suppāraka's situation mirrored in Faxian's travel account (339-414 C.E.). His ship was caught in a storm for nearly two weeks and blown every which way. Even after the wind settled, many days were dark and rainy, with no way to determine which way the ship was headed. As there was no place to anchor in the deep ocean, the ship was at the mercy of the wind. The "merchants were full of terror, not knowing where they were going."⁴⁹³

Buddhist maritime literature reflects the reality of ancient seafaring: the ocean was all powerful. A successful voyage relied on favorable winds and clear skies. In a world without engines, the sense of helplessness would be understood by the maritime communities who heard these legends. Helplessness is part of the ocean as *saṃsāra* metaphor, and one of the things that makes the metaphor such a powerful device. The seeming helplessness of beings in the ocean of *saṃsāra* is what creates the occasion for rescue from the sea and for salvation by the Bodhisattva.

⁴⁹² Āryaśūra 1895, 176, vv. 4-6.

⁴⁹³ Fa-hsien 1886, 112.

Terror, Prayer, and Action

The *Supāraga-jātaka* (*Jātakamāla* No. 14) describes the behavior of the ship's crew during a horrendous gale: "Some were overcome by affliction and stood speechless with terror, some behaved courageously and were busily working to avert the danger, and some were absorbed in prayers to their tutelar deities."⁴⁹⁴

The same three reactions (terror, courage, and prayer) are mirrored in the stones of Borobudur. Forty-two figures are involved in the maritime disasters depicted in panels I.b.108, I.B.a.54, and I.B.a.193 (Table 2). Petrified by terror and despair, 12 have abandoned their duties. Their posture makes them easy to identify. Four of the figures are cowering and crying openly, with their hands covering their eyes and faces. We can imagine that these figures, like in Supāraga's story, are giving up "bitter" lament, "like the cry of those who are burning in the lowest hell."⁴⁹⁵ Five are agitated and seeking to cling to some sure piece of the ship: the masts, ropes, stem, or sternpost. Seven of the twelve look dumbfounded, either inertly watching their three comrades struggling in the ocean or gawking at the fearsome creatures emerging from the depths. Supāraga's story describes this torpor and resignation in the face of the unthinkable: "Their minds lost their energy, their limbs became powerless, and sitting down in dull sadness, they did nothing but sigh."⁴⁹⁶

⁴⁹⁴ Āryaśūra 1895, 177, vv. 8

⁴⁹⁵ This is a reference to *Avīci* (meaning: without waves), the lowest hell from which there is no rebirth (Cowell 1901, 90).

⁴⁹⁶ Āryaśūra 1895, 181, vv. 21.

Table 2. Figures involved in the maritime disasters depicted in panels I.b.108, I.B.a.54, and I.B.a.193

Vessel	Figure	Activity	Status	Reaction
I.b.108 (right)	17	Lying on the outrigger	Overboard	N/A
I.b.108 (right)	18	Clinging to the outrigger	Overboard	N/A
I.B.a.193	3	Climbing aboard	Overboard	N/A
I.b.108 (left)	1	Tending the lines	Attending duties	Courageous
I.b.108 (left)	2	Hailing	Attending duties	Courageous
I.b.108 (left)	3	Tending the lines	Attending duties	Courageous
I.b.108 (right)	6	Fixing the headsail	Attending duties	Courageous
I.b.108 (right)	7	Tending the mainsail boom	Attending duties	Courageous
I.b.108 (right)	8	Tending the lines	Attending duties	Courageous
I.b.108 (right)	9	Pulling on the halyard	Attending duties	Courageous
I.b.108 (right)	11	Setting the yard	Attending duties	Courageous
I.b.108 (right)	12	Climbing the mainmast	Attending duties	Courageous
I.b.108 (right)	13	On the ladder, tending the lines	Attending duties	Courageous
I.b.108 (right)	14	Climbing to mizzenmast head	Attending duties	Courageous
I.b.108 (right)	15	Hauling on the mizzen yard brace	Attending duties	Courageous
I.b.108 (right)	16	Hauling in the mizzenmast halyard	Attending duties	Courageous
I.B.a.54	1	Hauling on the halyard	Attending duties	Courageous
I.B.a.54	2	Hauling on the halyard	Attending duties	Courageous
I.B.a.54	3	Hauling on the halyard	Attending duties	Courageous
I.B.a.54	5	Jettisoning cargo	Attending duties	Courageous
I.B.a.54	6	Woman, jettisoning cargo	Attending duties	Courageous
I.B.a.54	9	Fixing the sail	Attending duties	Courageous

Table 2. Continued.

Vessel	Figure	Activity	Status	Reaction
I.B.a.54	13	Jettisoning cargo	Attending duties	Courageous
I.B.a.193	1	Steering	Attending duties	Courageous
I.B.a.193	5	Rescuing shipmate	Attending duties	Courageous
I.B.a.54	7	Praying with hands together	Ritual	Religious
I.B.a.54	8	Suppāraka, conducting saccakiriya	Ritual	Religious
I.B.a.54	10	Praying with hand raised	Ritual	Religious
I.b.108 (left)	4	Gawking	Abandoned duties	Terrified
I.b.108 (left)	5	Clinging to sternpost	Abandoned duties	Terrified
I.B.a.54	4	Gawking	Abandoned duties	Terrified
I.B.a.54	12	Despairing, hand on face	Abandoned duties	Terrified
I.B.a.54	14	Gawking	Abandoned duties	Terrified
I.B.a.54	16	Despairing, hand on face	Abandoned duties	Terrified
I.B.a.193	2	Despairing, hand on face	Abandoned duties	Terrified
I.B.a.193	4	Clinging to rigging, gawking	Abandoned duties	Terrified
I.B.a.193	6	Clinging to mast, gawking	Abandoned duties	Terrified
I.B.a.193	7	Clinging to rigging, gawking	Abandoned duties	Terrified
I.B.a.193	8	Clinging to stem, gawking	Abandoned duties	Terrified
I.b.108 (right)	10	Unknown	Unknown	Unknown
I.B.a.54	11	Unknown	Unknown	Unknown
I.B.a.54	15	Despairing	Abandoned duties	Terrified

The Buddhist texts tell us that seamen were supposed to face the dangers of the ocean with courage, to set aside their fear and attend to their duties. During the ceaseless gale that drives the ship off course, Supāraga's crew loses hope and becomes dejected.

Supāraga admonishes them to pull together and face the ocean with courage. He commands: "Shake off that sadness and dejection, set rather to work, availing yourselves of the opportunity of working. The energy of a wise man, kindled by firmness of mind, is the hand by which success is grasped in any matter. Let each of you then be intent on performing his special duty."⁴⁹⁷

Over half of the figures in these three reliefs (22) are attending to their duties in the face of disaster. All hands are lively about the deck of the large vessel in I.b.108. Ten of the seamen are either hauling on the ropes, trying to manage the sails, or climbing to the mast head. The most emblematic is the courageous sailor who has made his way out onto the bowsprit to fix the entangled headsail. In I.B.a.54, a group of four sailors are trying to bring the ship under control. Additionally, three of the passengers are tossing cargo overboard, presumably to lighten the vessel. The merchants aboard Faxian's ship similarly jettisoned their heavy cargo when the boat began to ship water.⁴⁹⁸ The sails of the vessel in I.B.a.193 (the story of the turtle) are out of control. Unlike the scenes in I.b.108 and I.B.a.54, no one is taking action to secure them. The crew seem to have given up. Only the helmsman seems to be at his post, though perhaps he too is simply

⁴⁹⁷ Āryaśūra 1895, 177, vv. 10–11.

⁴⁹⁸ Fa-hsien 1886, 112.

standing and staring, unable to control the ship in the violent sea. One clear-thinking sailor is pulling his comrade out of the water, and away from the jaws of the monster.

Surprisingly few of the figures have explicitly turned to prayer. This may be because the mariners would have exclaimed their religious devotions as they moved about the duties, or as they gave into grief. Prayer and devotion are difficult to confirm in the reliefs, the low instances of these activities should not be taken at face value. One figure (I.B.a.54 #7) standing behind Suppāraka (#8) has his hands pressed together, either as a religious act, or honoring Suppāraka's actions. A figure at the stern (#10) is sitting with one hand raised high, perhaps calling out devotions to a god. Throughout the *Jātakas*, sailors and merchants turn to prayer and ritual in a moment of distress. Supāraka's story describes the sailors turning to Indra, as well as the others of the 33 gods (the Ādityas, Rudras, Maruts, and Vasus). Some cried out to the ocean itself, while others attempted magic spells and abased themselves before Devī.⁴⁹⁹

In the face of the impossible power of the sea, the reactions of the Bodhisattvas are dramatically different than those of common seamen. Shaw points out that instead of turning to the Brahmanic pattern of empty prayer and ritual, the heroes take clear action.⁵⁰⁰ Instead of waiting for his ship to sink, Sankha covers himself with oil, eats a great amount of ghee and sugar, gets his bearings, and makes a swim for shore (*Jātaka* No. 442). The ship captain in the *Pancakānaṃ Bhadravargikānāṃ Jātaka* does not

⁴⁹⁹ Āryaśūra 1989, 101, vv. 25–6.

⁵⁰⁰ Shaw 2012, 143–4.

hesitate to act. He sacrifices his body so that his comrades might live.⁵⁰¹ When faced with the destruction of his ship, Suppāraka leaps to the bow of the vessel and conducts an “Act of Truth” that invokes his great merit. Shaw points out that one aspect of “skill in means” is the Bodhisattva’s ability to “navigate his mind well.”⁵⁰² Instead of letting their actions be clouded by fear, the Bodhisattvas maintain clarity, properly assess the situation, act resourcefully, and are, thus, in a better position to help others.

Captain and Navigator

Buddhist stories provide important insights into the leadership and knowledge required to undertake a successful voyage. While the *Gaṇḍavyūha* uses the mariner’s art as a metaphor for Buddhist practice, we can use the metaphor to understand the Buddhist perception of ancient navigators. Vaira explains:

“I know how to avoid all the whirlpools and billows, and I know the colors and depths of all the waters. I know the cycles of the sun, moon, stars, and planets, and the lengths of the days and nights. I know when to travel and when not to; I know when it is safe and when it is dangerous. I know the performance and soundness of the hull and rigging of ships. I know how to control and steer ships, I know how to catch the wind, I

⁵⁰¹ Jones 1956, 350–4.

⁵⁰² Shaw 2012, 150.

know where the winds rise from, I know how to direct the ship and how to turn it around, I know when to anchor and when to sail."⁵⁰³

Vaira's commentary on his role as captain and navigator is directly complimented by the description of Supāraga's expertise in the *Jātakamāla* (No. 14), which illustrates the skills ancient navigators were expected to have:

*Knowing the movements of the heavenly bodies, the Great One never lost his sense of direction. He recognized all the telltale signs around him – the usual, the unusual, and the dangerous – so that he could forecast how long good or bad conditions would last. From such clues as the fish, the color of the water, the type of terrain, the birds, and the rocks, he could easily plot his position at sea. He also had presence of mind and could fight off drowsiness and fatigue. Ever alert and tenacious, he put up with heat and cold and with the exhausting onslaught of the elements.*⁵⁰⁴

This passage from the *Jātakamāla* likely dates from the first century C.E. It is most certainly based on older traditions, and perhaps seafaring manuals that no longer exist.⁵⁰⁵ More than a millennia later, Ibn Mājid (1421-ca. 1500 C.E.) echoed its words and organization in his significant navigational treatise, the *Kitāb al-fawā'id fī Uṣūl 'Ilm al-Baḥr wa'l-Qawā'id* (*The Book of Benefits on the Principles of the Science of Navigation*), written between 1489 and 1490 C.E. His second chapter, which

⁵⁰³ Cleary 1993, 1262.

⁵⁰⁴ Āryaśūra 1989, 96.

⁵⁰⁵ Tibbetts 1981, 1–2; Schlingloff 1988, 196.

summarizes the basic principles of navigation, follows the organization of the *Jātakamāla* very closely. It begins by stating that the pilot must know celestial navigation, signs of landfall, winds patterns, and seasons of the sea. Ibn Mājid then discusses the patterns of the stars and methods of taking latitude, as well as using terrain and “guides such as mud, or grass, animals or fish, sea-snakes and winds” to navigate.⁵⁰⁶ The text emphasizes the importance of inspecting the ship and its crew, and making sure that the ship is properly loaded. Mirroring the brief passage from the *Jātakamāla*, Ibn Mājid concludes by discussing the character of the captain, who should be able to endure fatigue and be knowledgeable, steady, ambitious, patient, and of sound judgment.⁵⁰⁷

By the time Ibn Mājid was writing in the 15th century, navigation science had radically changed from the early Buddhist period. As the maritime silk road expanded and long open-ocean voyages became common during the latter part of the first millennium C.E., navigational techniques became increasingly precise and complex. By the ninth century C.E., Indian Ocean pilots were using scientific instruments, (such as Khwarizmi’s staff and sets of wooden tablets known as *khashabat*), for precisely measuring the positions of the sun, moon, and stars. These early devices were soon replaced by the *kamal*, (a system involving a wooden tablet moved along a knotted string), used well into the modern period.⁵⁰⁸ The magnetic compass was invented in

⁵⁰⁶ Tibbetts 1981, 7.

⁵⁰⁷ Tibbetts 1981, 77–8.

⁵⁰⁸ McGrail 2001, 85; Agius 2005, 160–4.

China, and was being used on trading voyages between China, Sumatra, and India in the tenth century C.E.⁵⁰⁹

Despite these advances, Ibn Mājīd did not trust the compass,⁵¹⁰ and many of the observational techniques he mentions had not significantly change since the time that the *Supārāga-jātaka* was composed. This makes the Ibn Mājīd treatise a valuable comparative and interpretive resource. There are only a few earlier known treatises and sailing manuals. Although they discuss celestial navigation, monsoons, sailing seasons, currents, distances between ports, signs of landfall, and signs of the sea, the information they provide is limited.⁵¹¹ There are no known equivalents to these texts from India and Southeast Asia,⁵¹² so we must rely heavily on Ibn Mājīd to interpret these Buddhist passages.

The following observations are not designed to provide a summary history of the navigation and seafaring techniques used along the maritime silk road. Instead, they are simply meant to highlight the maritime knowledge underlying the above excerpts from the *Jātakamāla* and *Gaṇḍavyūha*. This is necessary, because they are short, densely written passages, and single words contain a great deal of information.

*Knowing the movements of the heavenly bodies.*⁵¹³ After brief interdictory words, both Ibn Mājīd treatise and the *Supārāga-jātaka* mention celestial navigation first,

⁵⁰⁹ McGrail 2001, 85.

⁵¹⁰ Where the compass is mentioned in Arab navigational treatises, the texts are describing errors or defects with its use and design (Tibbetts 1981, 290).

⁵¹¹ Tibbetts 1981, 2–4.

⁵¹² McGrail 2001, 278.

⁵¹³ A discussion of the complex methods of ancient celestial navigation is far beyond the scope of this thesis. See Lewis 1972, Tibbetts 1981, Arunachalam 1996, and Agius 2005.

underlining the importance of being able to sail by the sun, moon, and stars. Celestial navigation was particularly critical for deep-water sailing. This reliance on the sky is readily apparent in Faxian's account of his voyages (339-414 C.E.); on stormy and overcast days his ship had no way to maintain a steady heading and wandered far off course.⁵¹⁴

Indian Ocean navigators retained their knowledge of the stars and their movements into the modern period, and Arunachalam notes that for Indian seaman, star-watching was "a keen pastime of practical utility."⁵¹⁵ Stellar navigation requires the retention of a great amount of data; sailors needed to be able to identify individual stars, understand which star groups provided accurate readings, know those that were important to the region, and be aware of the periods of the year in which they could be used.⁵¹⁶ Celestial observations were also used to determine time, which was important for calculating distance sailed.⁵¹⁷

Where the winds rise from: Mariners could navigate by the direction of the wind. At their height, the monsoons were steady enough that they could be used as a compass. Master mariners could even steer by more ephemeral and changing winds. Storms, as well as specific and known land and sea breezes could be recognized by humidity, temperature, and other identifiable sensations.⁵¹⁸ Arunachalam observes that the "reliance on wind makes seamen develop a strong sense of feel, character and behavior

⁵¹⁴ Fa-hsien 1886, 112.

⁵¹⁵ Arunachalam 1996, 270.

⁵¹⁶ Arunachalam 1996, 272.

⁵¹⁷ Arunachalam 1996, 263.

⁵¹⁸ Tibbetts 1981, 143-4.

of the wind.”⁵¹⁹ The direction of the wind-driven swell could also be used as a navigational aid.⁵²⁰ Vaira mentions knowing where the “winds rise from,” which is probably a reference to ancient wind roses, in which cardinal directions are associated with specific winds. Variations of an eight-directional wind-rose are typically used throughout India and the surrounding islands of the Indian Ocean and Bay of Bengal. In addition to their association with directions, the indigenous names for winds might indicate the season, their physical characteristics (such as being a “rain bearing wind” or a “cold wind”) or their origins/termini (such as a “Ceylon wind” or a “Persian wind”).⁵²¹ Other Indian Ocean seamen associated winds with the locations of stars. This created a system in which the wind compass corresponded to the star compass, and the direction of a known wind could substitute for celestial observations.⁵²²

The type of terrain: Coastal landmarks were essential for navigation. These could be obvious features such as cities, mountains, cliffs, river mouths, reefs, and islands, or small features such as abandoned huts and distinctive boulders. Gnarled trees could even serve as important landmarks in sparsely wooded regions.⁵²³ Navigators also observed how landforms changed as the ship moved past them. These progressions could help identify a particular mountain or feature. For instance, Ibn Mājid describes how the mountain al-Atwa initially appears as a large animal with its head tied down, then a

⁵¹⁹ Arunachalam 1996, 264.

⁵²⁰ McGrail 2001, 83.

⁵²¹ Arunachalam 1996, 265–6.

⁵²² McGrail (2001, 83) points out that similar wind-star systems were used in northern Europe and the ancient Mediterranean.

⁵²³ Agius 2005, 175–6.

“tell,” then a “*lūb*” of honey.⁵²⁴ Navigators used poetry, song, and illustrations to memorize the landscape. These oral geographies were eventually written down. A tenth century C.E. account by al-Masqdisi describes traveling with captains and pilots who had extensive knowledge of local topography, currents, winds and land marks, and had in their possession sailing directories that they constantly consulted.⁵²⁵ In later periods, Indian Ocean seamen kept detailed manuals that documented the physical, hydrological, and biological geography of coastline in elaborate detail.⁵²⁶

The depths of all the waters: The reference to knowing the “depths” is brief, but informative. A sounding device was one of the most simple and useful navigation tools. They could be used to identify underwater hazards such as abrupt rises in the seafloor, hidden shoals, and the presence of rocks and reefs. Apart from their role in detecting hazards, soundings were an essential part of ancient navigation. Underwater features (e.g. a sudden shelf, a seamount, a gradual rise, a flat muddy plain) served as important waypoints. Sounding allowed deepwater voyagers to judge their position in relation to the continental shelf.⁵²⁷ With a bit of wax, a sounding device could be used to collect samples of the bottom. The presence of different types of mud, sand, silt, rock, and coral could serve as landmark as well as signal impending seafloor changes in uncharted waters.⁵²⁸ Sounding leads are known to have been used in Asia since the turn of the second millennium C.E., and they were probably in use before. Intriguingly, the

⁵²⁴ Tibbetts 1981, 78, 255.

⁵²⁵ Hourani and Carswell 1995, 107.

⁵²⁶ Arunachalam 1996, 275.

⁵²⁷ Agius 2002, 178.

⁵²⁸ Tibbetts 1981, 278–9.

Jātakamāla mentions the changing sediments of the bottom at the beginning of Supāraga's voyage. Speyer translates the line as, "on its bottom different sorts of ground extend, concealing manifold precious stones," while Khoroché translates it as, "the ocean floor, encrusted with many kinds of gems, is forever changing."⁵²⁹ In the *Suppāraka-jātaka*, the seafloor contains precious stones. At each ocean they come to, Suppāraka casts out a rope with a net, and secretly collects sediment from the bottom. It contains different kinds of precious things depending on the ocean (e.g. diamonds, gold, coral, etc.). These samples of the seafloor are the great treasure at the end of the disastrous voyage. This portion of the narrative might have been inspired by ancient navigators taking soundings and collecting samples of seafloor sediment. Certainly, I believe it is important to point out that the stories show an awareness of how the bottom of the ocean changes.

The colors of the water: A skillful navigator had to know the physical differences between various bodies of water. Even the color and character of the sea were important, as various bodies of water look and taste different. For instance, the *Periplus of the Erythraean Sea* describes how the enormous volume of water flowing from the Indus changed the character of the surrounding ocean and freshened it. These changes could be observed out of sight of land.⁵³⁰ Navigators with knowledge of local waters could also use the color of the water as a proxy for depth.⁵³¹ In the story of Supāraga/Suppāraka, the great navigator identifies each ocean by descriptions of its color, waves, and sea life.

⁵²⁹ Āryasūra 1989, 97.

⁵³⁰ Schoff 1912, sec. 38.

⁵³¹ Arunachalam 1996, 268.

For instance, in the *Jātakamāla*, the Dadhimālī sea is described as an “ocean whose waters shone silvery bright, while a mass of foam overlaid it with white,” and the Nalamālī ocean is described like “a lush meadow, while its pretty crests of foam are like white water lilies.”⁵³² These descriptions are poetic, but suggest that ancient mariners were well attuned to changes in the character of the ocean. Boatmen from the Malabar and Andhra coasts report on dark nights following calm and sultry weather, or on overcast nights during the monsoon period, the sea takes on milky or luminous character.⁵³³ Traditional Indian Ocean navigators can feel the change in the swell upon approaching land. The rising breakers of the surf zone are distinctive clues, but skilled pilots can identify islands and shallow reefs before they are sighted by paying attention to changes in the feel of the waves against the boat. Off-shore regions can be divided into various zones by the characteristics of their waves.⁵³⁴

Fish: Navigators had to be able to properly identify different species of fish and marine reptiles. The ranges of these creatures provided important information about a ship’s general location and imminent landfall. The *Periplus of the Erythraean Sea* describes the different types of serpents that dwell in the waters off the western coast of India.⁵³⁵ In addition to the different species of sea snakes, Ibn Mājid and al-Mahri mention a wide variety of other aquatic animals that could be used to identify the vessel’s location throughout their treatises, including swordfish, string-rays, squid,

⁵³² Āryaśūra 1989, 99–100.

⁵³³ Arunachalam 1996, 268.

⁵³⁴ Arunachalam 1996, 266.

⁵³⁵ Schoff 1912, sec. 38, 40. Ibn Mājid notes that the northern extent for snakes was Mangrol in Gujarat, while the southern extent was Mangalore, on the Malabar Coast (Tibbetts 1981, 285–6).

marlin/sailfish, and whales/whale sharks.⁵³⁶ Suppāraka/Supāraga was able to identify the Khuramāla Sea by the presence of fish “with bodies like men, and sharp razor-like snouts” were leaping in and out of the water.⁵³⁷ In the Jātakamāla, they are described, “like demon warriors coated in silver mail. Their eyes are frightening, and their deformed noses look like razors.” Khoroché’s note on the subject suggests that they are either sharks or dolphins.⁵³⁸ However, a better fit might be the black marlin which thrive off the coasts of India and Sri Lanka (Fig. 96). They have pointed bills and silver-white underbellies, and are also known as silver marlin, because when they leap from the water, “slight variations in color cause some specimens to have a silvery haze over the body.”⁵³⁹

Birds: Birds were an incredibly important navigational tool, and are frequently mentioned in sailing treatises from South Asia and Arabia. The trained eye could identify different species by their unique calls, plumage, silhouettes, flight patterns, group behavior, feeding habits, flight direction, seasonal activity, and numerous other means. Diverse species had unique ranges, which could help identify location, as well as known habits which could point the way to land, indicate the presence of marine resources, and forecast storms.⁵⁴⁰ Polynesian navigators used bird migration patterns to

⁵³⁶ Tibbetts 1981, 288–9.

⁵³⁷ Cowell 1901, 88.

⁵³⁸ Āryasūra 1989, 98, 263.

⁵³⁹ International Game Fish Association 2014.

⁵⁴⁰ Arunachalam 1996, 270.



Fig. 96. A marlin leaping from the water, perhaps the silver fishes “with bodies like men, and sharp razor-like snouts” that the sailors describe (photograph from Sigda 2009).

guide them to isolated islands through Oceania and the Pacific. They also trained way-finding birds.⁵⁴¹

Birds frequently appear in world literature, most famously in the various versions of the Noah story.⁵⁴² The oldest reference to bird navigation in India comes from the fifth century B.C.E. *Kevaddha Sutta*, in which the Buddha describes how ancient traders took land-sighting birds with them on ocean voyages. Once released, the flight path of the birds would point the way to land when the ship was far from shore.⁵⁴³ If it did not find land after flying in all directions, the bird would return to the ship. This is directly mirrored in Pliny's *Natural History*. He observed that Sri Lankan sailors carried numerous birds aboard their ship. They would set them free at frequent intervals and follow their course to land."⁵⁴⁴

Birds enjoy a special place in seafaring literature, and are often associated with good fortune. For instance, when Prince Bhujyu is shipwrecked, he is saved by gods in the form of birds.⁵⁴⁵ When Gokarna is stranded at sea, his wise parrot flies off toward land and returns with a flock of divine birds who pluck him out of the sea.⁵⁴⁶ In both stories, shipwrecks are associated with salvation in the form of birds. Their role as saviors may be inspired by the role of sea-birds, shore-birds, and land-finding pigeons in delivering sailors safely to their destinations.

⁵⁴¹ Hornell 1946, 144–5.

⁵⁴² Hornell 1946, 142–3.

⁵⁴³ *Dīghanikāya* I (v. 222-3), quoted in Shaw 2012, 135.

⁵⁴⁴ Pliny 1938, 6.24.83.

⁵⁴⁵ Griffith 1896, I. I.116.3–5.

⁵⁴⁶ Iyer 2003, 496–510.

We can see this navigational technique come to life in panel II.41. A flock of six birds is flying above Vaira's ship (Fig. 97). They are large, with long necks and dangling feet. It is unlikely that they are arbitrary embellishments. Considering the context of Vaira's discourse on navigation and seafaring, I suspect that it is more probable that they represent seabirds leading the ship safely to shore. A single little bird is flying upward between the sail and sternpost pennant, directly above the captain. Small with short wings, it is completely unlike the birds circling above. I think that within the context of the navigation narrative, the bird's strange position, direction of flight, and small size indicate that it is a land-finding pigeon released by the crew, just like the ones described by the Buddha in the *Kevaddha Sutta*.

When to sail: Vaira mentions the proper time to sail in three phrases ("when to travel... when it is safe... when to anchor..."). The emphasis here likely reflects the importance placed on knowing the nuances of the sailing season and the patterns of the weather. The knowledge of "when" was critical to the mariner's art. For a successful voyage one had to know when to catch fair winds and avoid dangerous weather. The religious calendar would also have been important. A shipper had to know which days were auspicious, and which were ill-omened

Soundness of the hull and rigging of ships: Vaira talks about the "sturdy ship" as the basis of a "safe, peaceful" voyage. In his list of navigational skills, he mentions knowing the "performance and soundness of the hull and rigging."⁵⁴⁷ This reminds us

⁵⁴⁷ Cleary 1993, 1262.



Fig. 97. Panel II.41 shows a flock of seabirds circling above the vessel, indicating land is close. The crew have release a small, land finding pigeon like the ones described by the Buddha in the *Kevaddha Sutta* (adapted from Van Erp 1923, 28, afb. 10).

that a good captain had to understand how to evaluate the seaworthiness of his vessel, both above and below the water. Ibn Mājīd asserts that inspecting the ship was the most important task before sailing. It was the duty of the captain to ensure the upkeep of his vessel. Ibn Mājīd even provides routines for inspection, covering the rigging, sails, steering equipment, hull, instruments, and all parts of the ship. The captain also had to inspect the provisions, make sure the ship was properly loaded for sailing.⁵⁴⁸

Presence of mind - alert and tenacious: Arab writers constantly mention the dangers of fatigue. It was one of the leading causes of maritime disasters. Ibn Mājīd observed that in times of fatigue, the captain should strive for patience, for these were times when the enterprise was most at risk.⁵⁴⁹ The *Supārāga-jātaka* repeatedly echoes these concerns with extreme exhaustion, emphasizing that Supārāga had “*presence of mind* and could fight off *drowsiness* and *fatigue*. Ever *alert* and tenacious, he put up with heat and cold and with the *exhausting* onslaught of the elements.”⁵⁵⁰ The captain had to be steadfast, for he could not trust his crew. He had to be ever watchful of the course of travel, the ship, and its parts. The captain should sleep, but only enough to be rested. They had to be alert to what was happening aboard.⁵⁵¹

Arab writers stressed that the relationship between ship, pilot, and crew was an essential part of navigation. Ibn Mājīd suggested, “although this is not scientific in itself, it is characterized by this science.”⁵⁵² The leadership of the captain was central to this

⁵⁴⁸ Tibbetts 1981, 77.

⁵⁴⁹ Tibbetts 1981, 77.

⁵⁵⁰ Āryaśūra 1989, 96 (my italics, added for emphasis. –D.I.).

⁵⁵¹ Tibbetts 1981, 388.

⁵⁵² Tibbetts 1981, 387.

equation. Ibn Mājid stipulated that a good captain was knowledgeable, reliable, pious, patient, and gentle in speech, as well as a good administrator, a fair arbitrator, reasonable with merchants and decisive when called upon. He had to be able to distinguish between movement and haste.⁵⁵³

When conditions were the worst, a great captain needed to elevate those around him. Supāraga demonstrated his powers of leadership in the *Jātakamāla*. After his ship was blown off course, his crew lost heart. “Day followed day without their catching sight of land or even of the expected seamarks. Those they did see were strange to them, and only made them feel even more desperate. Fear and despondency overwhelmed them...” Seeing this, Supāraga displays his character with a rousing speech. First, he provided perspective, reminding them that they are on an open-ocean voyage, and they should not be surprised to encounter such a storm, for they are commonplace in the sea. Next he rebukes them for succumbing to hopelessness, for “despair is no remedy for misfortune.”⁵⁵⁴ He then motivates them to shake off their apathy and take action. Instead of contemplating disaster, he tells them to focus their minds on the urgent duties at hand.⁵⁵⁵

⁵⁵³ Tibbetts 1981, 77, 387.

⁵⁵⁴ Āryaśūra 1989, 96, 98.

⁵⁵⁵ Āryaśūra 1895, 177, vv. 10–11.

CHAPTER VI

CONCLUSIONS

Overview

In 1923, Dutch engineer Theodore Van Erp published a comprehensive study of the Borobudur ship reliefs entitled, *Voorstellingen van vaartuigen op de reliefs van den Boroboedoer*. Although other scholars had previously discussed the vessels, Van Erp's analysis was unique, and remains unique, because it 1) examined the construction features of each individual vessel, and 2) described the Buddhist narratives associated with the reliefs. Scholars such as Hornell, Mookerji, Needham, Horridge, Manguin, Ray, and others have used the reliefs to improve our understanding of maritime trade, seafaring, and ship construction in Southeast Asia during the second half of the first millennium C.E.⁵⁵⁶ However, scholars have largely ignored the other, equally important component of Van Erp's publication: the Buddhist narratives associated with the reliefs. This study is intended to partially address this gap in scholarship.

The objective of this thesis is to place the Borobudur Vessels in their proper religious, artistic, and narrative context. This chapter will summarize the historical and religious background that led to the creation of the Borobudur ship reliefs. It will then turn to answering the three questions presented at the beginning of this work: 1.) What can the Buddhist narratives tell us about the seafaring scenes depicted at Borobudur? 2.) How did the artistic framework influence the representation of the vessels in the reliefs? 3.) What do Borobudur's reliefs tell us about contemporaneous seafaring in the region?

⁵⁵⁶ Hornell 1946; Mookerji 1957; Needham et al. 1971; Horridge 1982; Manguin 1993; Ray 1994.

Historical Background

Maritime trade in Southeast Asia underwent a series of drastic changes during the first millennium of the Common Era. Trade between India, China, and the West drove the expansion of maritime trading routes and the proliferation of ports. Developments in seafaring, navigation, and ship construction made long open-ocean voyages possible. The Indonesian archipelago became increasingly connected with the maritime trade network, and Javanese and Sumatran commercial centers began to create a demand for archipelago products and spices in India and China. Following the destabilization of the Silk Road, Chinese merchants pursued new trading connections in Southeast Asia, and the Strait of Malacca emerged as the primary conduit for East-West trade. It became the central choke point of a trade network that stretched from China all the way to the Red Sea. In the late seventh century C.E., the city state of Śrīvijaya consolidated the control of ports along the interior Sumatran and Javanese coasts and secured dominion over the Strait of Malacca. It built a powerful navy that suppressed piracy and expanded Śrīvijaya's zone of influence. Śrīvijaya's rulers were Buddhists, and their power and influence contributed to the spread of Buddhism through Southeast Asia.

In the late eight century, the Śailendra Dynasty came to power in Java. Like their Śrīvijayan allies, the Śailendras were also Buddhist. They controlled Java's system of wet rice agriculture through a complex system of alliances, and used this network to finance an extensive campaign of temple building, transforming Java from a Buddhist frontier to an international center for religious scholarship. Between 780 and 832 C.E.

the Śailendras constructed Borobudur as a symbol of their power, piety, and role as *cakravartin*, righteous monarchs who rule through spiritual authority. The monument was built in the shape of a mountain. It represented the spiritual center of the Śailendran realm, just as nearby Mount Tidar was considered to be the central point of Java, and the mythical mountain Sumeru was considered to be the central point of the universe. Borobudur became a pilgrimage center, drawing travelers from throughout Asia. It survived the collapse of the Śailendran Dynasty and the *Pralaya Mataram*, a devastating eruption that decimated the central Javan kingdom. Archaeological evidence indicates that foreigners continued to visit Borobudur into the 15th century C.E.

Eleven vessels are depicted in the reliefs of Borobudur. They are incredibly detailed representations of watercraft from the eighth to ninth century C.E., and provide physical evidence of ancient ship structures that almost never survive in the archaeological record, such as rigging, sails, outriggers, rudders, and deck structures. Scholars have focused on five outrigger vessels: I.b.86 (Fig. 44), I.b.88 (Fig. 45), I.b.108 right (Fig. 46), I.b.53 (Fig. 43), and II.41 (Fig. 47). They share a set of typological traits, including a similar hull shape, bipod masts, canted rectangular sails, rowing galleries, and a stem and sternpost sheathed with poles. In addition, they frequently have deck houses, oars, oculi, quarter rudders, bowsprits, headsails, and visible rungs between the legs of the bipod. Some of these elements seen in the reliefs, such as bipod or tripod masts, outriggers, quarter rudders and deckhouses, were retained by Indonesian *prahu* into the twentieth century. One possibility is that the outrigger vessels represent raiders or warships, much like the similarly configured *kora kora* of the 17th, 18th, and 19th

centuries. If so, they may be similar to the vessels used by Śrīvijaya to defend its waters and expand its zone of control. However, no incidences of shipboard violence are evident in Borobudur's reliefs. The Borobudur Vessels are associated with Buddhist narratives that primarily describe merchant vessels. While the outrigger vessels might have been used for trade, Manguin argues that their double outriggers would have been too great a hindrance for open-ocean sailing. He also observes that the Borobudur vessels do not match the Chinese descriptions of Southeast Asian watercraft.

Various other types of vessels are depicted in Borobudur's reliefs. Vessel I.a.115 is a river ferry (Fig. 53). Vessels I.b.108 left (Fig. 49) and I.b.82 (Fig. 48) likely represent ship's boats or tenders, like the one Faxian described being towed behind his ship on his voyage to Java (413 C.E.). Most scholars identify the two vessels with pole masts I.b.23 (Fig. 54) and I.B.a.54 (Fig. 55) as having Chinese-style lug sails, based largely on analysis by Needham. Further investigation of these reliefs is needed, but I would suggest that they actually represent double-ended vessels with prominent crossbeams and rectangular/square sails stretched between an upper and lower yard, similar to those operated by South Indian and Indian Ocean seamen. Vessel I.B.a.193 (Fig. 56) is sometimes lumped with these two ships, but it has a bowsprit, stern structure, and either a thin pole mast or a mast with multiple legs.

The Borobudur Vessels represent maritime events related in Buddhist *Jātaka* and *Avadāna* tales. These narrative traditions matured in the first half of the first millennium C.E. when the Asian maritime world was rapidly expanding. While social norms in South Asia maintained a rigorous caste system and stigmatized travel, trade, outsiders,

and private wealth, Buddhists broke with these traditions and found rapid acceptance within merchant communities. This relationship simultaneously stimulated the growth of trade and encouraged the spread of Buddhism. Many of the monks, nuns, scholars, and pilgrims who dispersed Buddhism throughout Asia embarked on long sea voyages. They established new Buddhist communities in shipping centers throughout Southeast Asia and China. These maritime connections brought Buddhists into contact with rich, preexisting folklore traditions involving ships, monsters, and adventure on the high seas. Buddhists capitalized on the excitement, danger, avarice, and courage inherent in maritime folklore, and populated *Jātakas* and *Avadānas* with greedy merchants, daring sailors, horrible sea monsters, oceans filled with treasure, islands populated by demons, spirits, and goddesses. These dangers and temptations became components of a vast metaphor in which the ocean represents *saṃsāra*, the endless cycle of death and rebirth, and crossing the ocean represents the process of awakening and obtaining enlightenment. Salvation from the sea (representing salvation the cycle of *saṃsāra*) became an important part of this metaphor. It gave rise to numerous stories about shipwrecked sailors rescued from the sea by a bodhisattva or divine being. This metaphor translated into the practical experiences of sailors, and bodhisattvas developed into saviors that could be called during times of distress at sea (specifically Avalokiteśvara/ Padmapāni/Guānyīn). While the Buddhist legends are often fantastic, they illustrate the skills and mindset needed to survive on an ocean-going vessel, and contain information about shipboard organization and seafaring life.

With this overview in mind, we can now address the research questions proposed at the beginning of this thesis.

1.) What can the Buddhist narratives tell us about the seafaring scenes depicted at Borobudur? At the most basic level, the Buddhist narratives help us understand what is happening aboard the vessels in Borobudur's reliefs. Vessel I.a.115 is a ferryboat. It sits unused at the side of the bank, for the Buddha has already crossed over the river. Vessel I.b.82 (Fig. 62) is a tender belonging to one of Rudrāyaṇa's wise ministers. The crew are filling it with jewels falling from the sky. Vessel I.b.86 (Fig. 63) is one of the ships fleeing the doomed city of Roruka. Minister Hiru sits in the stern, directing his crew to a safe windfall. Vessel I.b.88 (Fig. 64) belongs to minister Bhikṣu, and is likewise on a voyage to new lands. The vessels in I.b.108 (Fig. 69) are in peril from a storm and the monsters of the sea. Maitrakanyaka is somewhere in all the calamity, and will drift safely to shore aboard the ship's boat or a bit of flotsam. Vessel I.B.a.54 (Fig. 75) is being drawn into the jaws of the ocean. The crew is fighting to overcome their despair and regain control of the vessel. The legendary navigator, Suppāraka has leapt to the bow of the boat to deliver his *saccakiriyā*. Vessel I.B.a.193 (Fig. 80) is being attacked by a sea monster. The crew has lost hope, but they will be saved by the Bodhisattva. Vessel II.41 (Fig. 83) belongs to Captain Vaira. Skilled in his art, he is safely conducting a ship of merchants across the ocean to the treasure islands. They may be close to land, for they have released a land-finding pigeon.

These identifications are important because they allow us to discern important details in the reliefs. For instance, without knowing the story of Suppāraka, it would be

difficult to identify many aspects of the crowded ship depicted in I.B.a.54 (Fig. 75). It would be impossible to know that the sea monster represents the devouring mouth of the ocean at the edge of the world. While we would be able to perceive the terror and courage of the crew, we would not understand the significance of the figure standing at the bow with the pitcher. Thanks to the Pāli text (Jātaka No. 463), we know that this figure is Suppāraka, invoking the power of his merit through *saccakiriya*, and that the entire fate of the ship rests on this one individual. As this example shows, the narratives provide not only identity to the reliefs, but significance.

The Buddhist literature provides deeper context for everything we see happening aboard the vessels. It explains what was expected of a mariner, and illustrates the skills and mindset needed to survive on an ocean-going vessel. Sailors had to be courageous, and go about their duties in the face of disaster. They had to be alert, use common sense, and take action. They had to endure great hardship, and resist succumbing to fatigue. In particular, the *Supāraka-jātaka* and *Gaṇḍavyūha* help us understand the role and responsibility of the navigator. He had to know how to steer by the sun, stars, and wind. He had to be able to identify landmarks in the changing landscape and water, as well as understand the implications of different species of marine creatures and birds. The captain had to understand the greater patterns of the sailing season and religious calendar. He had to have common sense to know when to anchor and when to sail. He needed to know the soundness of both his ship and crew, and how to raise their spirits in the face of danger.

The seafaring stories also reveal the stakes of undertaking the voyage. They tell tales of mariners, such as Pūrṇa, who grew rich by sailing to islands full of gold. Jewels, and sandalwood. They also portray the great risks, and help us understand that the figures aboard the vessels, for all their skill, were helpless in the face of the all mighty sea. When we look at Borobudur Vessels with these stories in mind, we have a better sense of the emotion, drama, and purpose that the artisans were trying to portray.

2.) How did the artistic framework influence the representation of the vessels in the reliefs? Representations of ships are not the same as ships. While the Borobudur Vessels provide the best data we have about ancient watercraft in Southeast Asia, they also contain numerous distortions created by the artistic lens. After analysis, I would argue that panel proportions and division are the primary factors determining the size, shape, and complexity of the Borobudur vessels. The needs of the narrative and the adjacent scenes dictated how much space the artist could work with. If space was ample, they created a beautiful, intricate vessel such as I.b.86 (Fig. 58). If they had to include more events, the artists allocated less space to the ships and compressed their features, as with I.b.53 (Fig. 58).

Additional distortions are introduced through the use of perspective. Vessel I.b.86 is intended to appear as if it is heeling over in the wind and sailing toward the viewer at an oblique angle. To show this perspective, the artist increased the stagger of the mast legs, presented the forward faces of the outrigger booms, showed the forward end of the starboard rowing gallery on the other side of the bow, depicted the ship tapering from stem to stern, and positioned the break of the bow closer to the bottom of

the panel than the break at the stern. To show the vessel heeling over, the artist additionally exaggerated the forward rake of the stem, sternpost, and bipod masts. These distortions were largely ignored when Peterson created his reconstruction of I.b.86 (Fig. 39). The resulting model was unseaworthy, and had to be modified. The Borobudur Vessels are not blueprints of ancient watercraft; they are artistic depictions. Their design was governed by the needs of the narratives, the space available, and the limits of the medium. Scholars have repeatedly observed that the figures are disproportionate to the vessels.⁵⁵⁷ I believe that this should not be overlooked, because it reminds us that the characters and their actions are the centerpieces of the stories, while the ships are embellishments.

3.) What do Borobudur's reliefs tell us about contemporaneous seafaring in the region? The Borobudur Vessels provide a window on how seafaring stories were envisioned in ninth century C.E. Java. They represent a concentrated effort to capture the struggles, heroism, and drama of sailing. The reliefs depict emotions, such as fear, courage, torpor, and astonishment, as well as abstract concepts such as teamwork, self-sacrifice, and leadership. While these cognitive aspects of seafaring are described in the Buddhist literature, the 96 figures aboard the Borobudur vessels bring them alive.

The maritime disasters depicted in panels I.b.108 (Fig. 73), I.B.a.54 (Fig. 77), and I.B.a.193 (Fig. 80) involve 42 figures. Twelve of the figures have abandoned their duties. The artist has portrayed some cowering and crying openly, with hands covering their eyes and faces. Others are struck dumb, simply watching as events unfurl. Three

⁵⁵⁷ Peterson 2006, 42

have fallen overboard. One clings to the outrigger of I.b.108 (right). Another is scrambling back aboard I.B.a.193. A few have turned to prayer. The majority (22) are taking action. Many are fighting with the sails and rigging, trying to bring their vessels under control. In desperation, the individuals aboard I.B.a.54 are throwing the cargo overboard. Each panel has a different character. The crew of the vessels in I.b.108 are fighting for their lives, while those aboard I.B.a.193 seem struck dumb.

The sails, ropes, and masts of the Borobudur ship provide an incredible depiction of the rigging of Javanese vessels. The figures aboard the vessels, however, bring the rigging to life. At least 37 of the seamen are laboring to operate the ropes and lines. The gang of sailors depicted in I.b.23 (Fig. 87) are working in unison, pulling together to sway the yard under the direction of their captain. A lone figure in I.b.108 (right) shimmies his way out along the mast to disentangle the headsail. In I.b.86 (Fig. 65 and Fig. 66), I.b.108 (Fig. 73), and II.41 (Fig. 84) sailors head aloft or balance on the yard, perhaps attempting to free jammed ropes. The sailors in these scenes are working with clear determination. Some pull down on halyards with all their might, leaning backward on the rail while others twist their bodies with the force of exertion. Their efforts help differentiate between running and standing rigging. Lines that would be indecipherable can be interpreted as halyards or stays or other components. The vessels also reveal other aspects of a working boat, including religious ritual, and idle practices such as fishing.

The Borobudur Vessels provide an incredible depiction of seafaring life. The artists demonstrate their knowledge of the vessels not only through the careful illustration of ship components, but also through the skillful way they have depicted the sailors

operating the ships.⁵⁵⁸ The artisans clearly understood the vessels they were carving, and we can assume that the authenticity of the ships translates to the authenticity of the men aboard.

Perspective

Borobudur's ship reliefs capture a moment just after the Southeast Asian maritime world changed. For thousands of years, sailors followed well-known coastal routes, rarely travelling for long out of sight of land. During the fifth century C.E., developments in seafaring and ship construction led to open-ocean sailing. Mariners quickly mastered the methods of navigating safely across the featureless reaches of the sea, and maritime trade networks rapidly expanded. Merchants began making regular voyages to the distant islands of gold that had once only been places of legend. We see from the experiences of Faxian (337- c. 422 C.E.) that a pilgrim could travel across the world and back again. Increasing numbers of Buddhist travelers followed in his footsteps, and world travel ceased to be extraordinary. Despite these transformations, the sea remained a terrifying place. It was a vast wasteland where a ship could become lost or succumb to sea monsters, storms, and hidden dangers. Yet, the sea could also be navigated, explored, fought over, and conquered. Even in the worst scenarios, there was hope. Bodhisattvas became personal saviors that could be called upon for salvation from the waves.

⁵⁵⁸ While the rigging of these vessels was beyond the scope of this thesis, the subject appears to have high potential for fruitful research.

Buddhists adopted seafaring stories into their scripture, drawing on the dangers, temptations, courage, and despair inherent in ocean travel, and incorporated these themes into the vast metaphor of the ocean as *saṃsāra*. Mariners, as common people, received little attention in Indian literature. The Buddhist stories cast sailors and merchants as heroes, and at last, mariners began to have their stories told.

Their struggles and triumphs are carved into the stones of Borobudur. We see sailors praying for their lives, cowering, clinging to the masts, embracing each other, being pulled from the ocean, succumbing to the deep, steering the ship, setting the sails, hauling on the rigging, working the oars, crawling along the bowsprit, jettisoning cargo, offering libations, conducting rituals, giving thanks, gazing upwards, and pointing to the horizon. These experiences were essential to the process of traveling across the ocean. They are not things that can be uncovered in the archaeological record, which makes these glimpses of seafaring life in ninth century Java one of Borobudur's great contributions to the history of seafaring.

GLOSSARY

Apsaras: Beautiful supernatural maidens.

Avadāna: Stories about the deeds and former incarnations of *Bodhisattvas* and other important figures in the Buddhist tradition.

Bodhisattva: Beings that seek enlightenment out of compassion for others. Some *Bodhisattvas*, such as *Avalokiteśvara*, delay their attainment of Buddhahood so that they can help others to reach enlightenment.

Buddha: Beings who have achieved perfect enlightenment. There are many Buddhas.

Gautama Buddha: The historical Buddha, born in the sixth or fifth century C.E. as Siddhārtha Gautama.

Jātaka: Stories about the former incarnations and deeds of Gautama Buddha.

Mandala: Sacred geometric diagrams that represent the structure of the universe, with a sacred mountain Sumeru at its center. They consist of nested circles and squares with a central point, and four gates.

Makara: A type of sea monster in Indian mythology, frequently depicted with a crocodile's head, elephant's trunk, the scaled body of a fish and a fanciful tail.

Nirvana: Liberation from the causes of suffering and the endless cycle of death and rebirth (*saṃsāra*). Literally to be extinguished or blown out like a candle.

Rākṣasī/Rākṣasa: Mythical creatures sometimes translated as ogres or demons.

Saṃsāra: The endless, torturous cycle of death and rebirth. Beings are trapped in *Saṃsāra* by illusion, aversion, and desire.

Stupa: A domed shrine containing Buddhist relics.

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